



# ENDEMIC BAMBOOS OF INDIA

## C O N S E R V A T I O N   S T A T U S

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**Endemic Bamboos of India**  
**Conservation Status**  
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*Ochlandra wightii* (Munro) C.E.C Fisch. (left);  
Flower of *Cephalostachyum capitatum* Munro var. *decompositum* Gamble (right)

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"A man is born in a bamboo cradle and  
goes away in a bamboo coffin.  
Everything in between is possible with bamboo"

**–Asian Proverb**

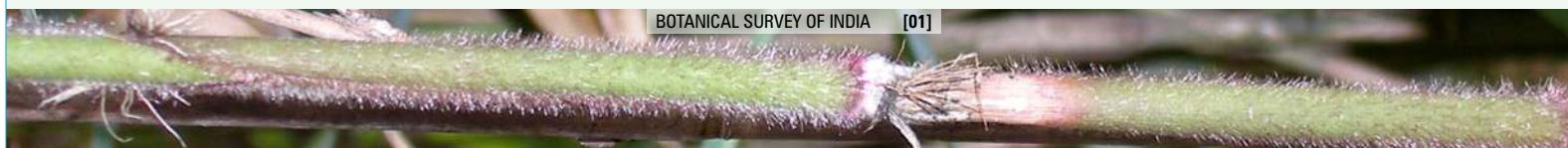


**Melocanna clarkei (Gamble ex Brandis)** P. Kumari & P. Singh



# INTRODUCTION

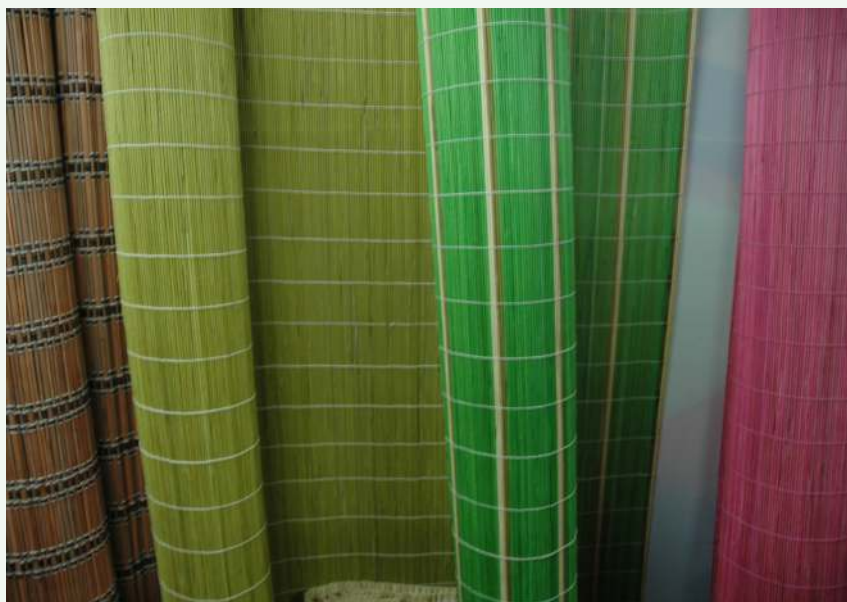
India is one of the 17 major mega diverse countries of the world with most diverse biogeographic regions and a wide range of topography, climate and habitat. The snow-covered high mountain ranges, low-lying swamps and mangroves, large stretches of coastal forests, islands, tropical evergreen forests, fertile alluvial plains, hot deserts and high altitude cold deserts have contributed immensely to the rich vegetation. The knowledge on the flora is improving rapidly by floristic explorations and documentation which results in many new discoveries. The diverse climatic conditions, varied topography and ecosystems diversity, have provided a long term stable habitats which allowed remnant tertiary flora to persist and facilitated active speciation to continue for evolution of new species, thus contributing to higher number of endemic plants. India harbours 23% of the endemic flowering plants which is highest in world next only to Australia (Hajra & Mudgal, 1997). Areas with high biological diversity and with exceptional concentration of endemic species but are under severe anthropogenic threat or experiencing loss of habitat are categorized as 'biodiversity hotspots' (Myers et al., 2000). To qualify as a hotspot an area must contain at least 0.5 percent or 1,500 of the world's 300,000 plant species as endemic. Based on this concept 34 global biodiversity hotspots have been recognized worldwide by Conservation International (CI), out of which 4 hotspots, namely the Indo-Burma, the Himalayas, the Western Ghats together with Sri Lanka and the Sundaland fall within the Indian political boundary. The endemic plants of India are mainly distributed in different geographical entities considered as an amalgamation of high endemism microregions.



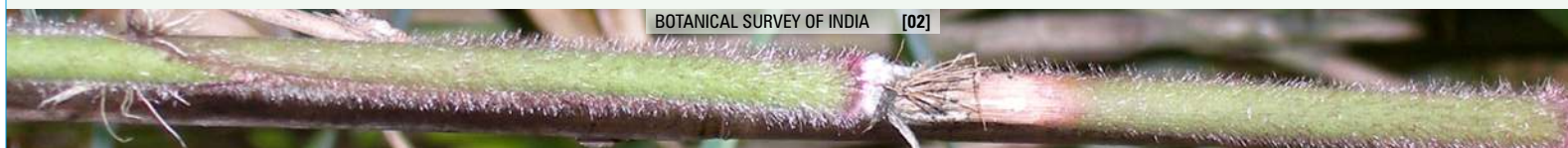
## Endemism

Taxonomic units that are confined to a narrow phytogeographic range because of their isolation by geographical (spatial), ecological or temporal (genetic, adaptive, etc.) barriers are called endemics. In other words, the term 'endemic' is used to denote any taxonomic category which has a restricted distribution and separated from the widely distributed species.

Endemic species are entirely dependent on a single area for their survival, and by virtue of their restricted ranges, are often the most vulnerable (Myers, 1988). The degree of endemism for an area is often cited as a measure of the uniqueness of the flora and prioritizing sites for conservation (Myers et al., 2000). Endemic elements of a region throw light on the biogeography of the area, centres of speciation, areas of extinction, vicariance and adaptive evolution of the flora and fauna of the area (Ahmedullah, 2000). Studies on endemics are useful to (i) understand the history of past vegetation, (ii) identify taxonomic relationships, (iii) characterize floristic regions, (iv) determine optimal design of conservation units and (v) prioritize conservation strategies.



Endemic plants are found through all land masses of the world, however their distribution is uneven and largely depending on three factors, geographical area, ecological suitability and isolation. Therefore, the endemic taxa restricted to particular peninsula, mountain peak or isolated mountain range or an island can well be remnants of an ancient flora which in course of geological and climatic changes found refugium in isolated or restricted geographical regions or



may be newly evolved taxa of recent origin through active speciation. Depending on the occurrence of the number of endemic taxa, many parts of world such as high mountains or islands which are rich in endemic species are recognized as the centers of endemism.

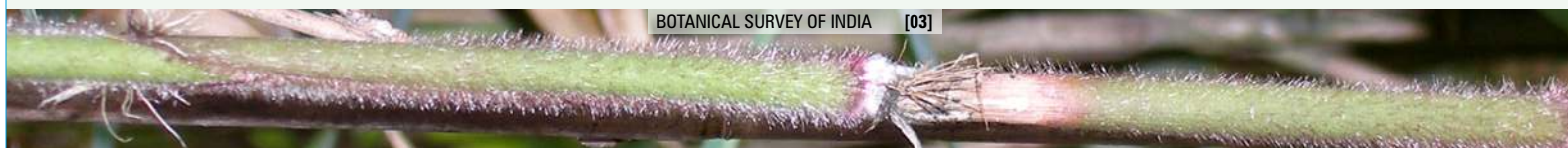
### Categorization of Endemic species

According to Cain (1944) endemism includes two types of plant species, namely endemics and epibiotics. The former is confined to a single region which is relatively youthful species that may or may not have spread over the entire area by having migrated to their natural habitat. While the epibiotics, are relatively old relict species which show a contraction of distribution. Stebbin & Major (1965), redefined, Cain's two categories into Palaeoendemics and neoendemics.



**Palaeoendemics:** These types of taxa represent older floras of geographically isolated landmasses. These are defined as those taxa that were formally more widespread, having suffered a severe range contraction as a result of Neocene and Quaternary climatic changes, and that are currently surviving in a small part of their original distribution area (Lopez et al., 2011). These type of endemic taxa are characterized by a woody habitat, low level of polyploidy or loss of genetic viability, showing a disjunct distribution in geographically isolated regions occurring in islands and mountain high-points.

**Neoendemics:** Neoendemics are recently evolved endemic taxa from an actively evolving parental genetic stock that have not yet spread significantly beyond their region of origin. These taxa are characterized by polyploidy in nature with perennial herbaceous or shrubby habitats (Stebbins, 1942) usually belong to polytypic genera, forming a species complex with no clear taxonomic boundaries (Lopez et al., 2011). Neoendemics also develop due to mutation, chromosomal re-arrangements,





polyploidy through geographical speciation, quantum speciation or sympatric speciation in a new environment having climatic and edaphic stresses.

According to Stebbins & Major (1965) neoendemic species are very high sensitive, even small climatic shifts can change local microclimatic conditions beyond the limits of tolerance of the neoendemic species, so that they must either have to migrate or to evolve new ranges of tolerance. Occurrence of neoendemic species is an indicator of climatic and environmental stress of a particular region.

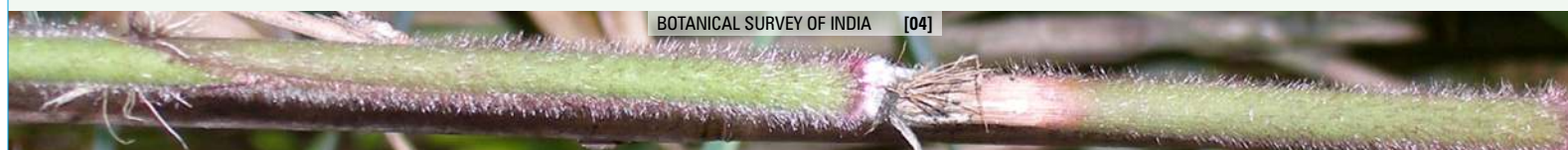
### The centers of endemism

For determining center of endemism, two main factors; the pattern of distribution (species richness) and the concentration of the endemic plants (degree of restriction) in a particular region play a significant role. Major or Macro centers of endemics are measured by the overall richness of endemic species in a wider prospective, while the minor centers are the small restricted pockets within the major centers provided a stable environment for speciation shows high concentration of endemic plants.



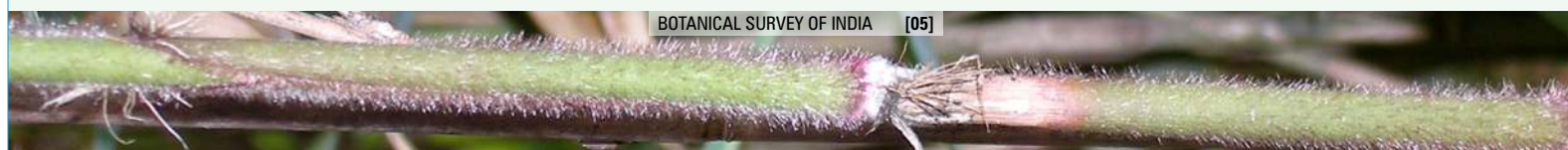
In Indian context, depending on the various concentrations of endemic plants, four major phytogeographical regions, i.e., **Himalayas, Northeast India, Peninsular India and extra-peninsular region** and **Andaman and Nicobar Islands**, can be interpreted as the major centers of endemism.

A total of 4381 taxa of vascular plants belonging to 1007 genera and 176 families are recorded as strict endemics to the Indian political boundary. Among angiosperms, family Poaceae has the largest number of endemic taxa (335 taxa), which constitutes 7.75% of the total endemic angiosperm flora of India. It is followed by Orchidaceae (274 taxa), Rubiaceae (235 taxa), Acanthaceae (234 taxa) and subfamily Papilionoideae (227 taxa), while the Leguminosae sensu lato contribute 274 endemic taxa.





Bamboos form a major component of the secondary forests and as pure strands mainly in North eastern states, Western Ghats and Andaman and Nicobar Islands. According to the present estimate more than 140 species are expected to be found in India of which 46 species are endemic to the country. Most of these are neoendemics. Two genera are described from and endemic to India. The endemic genus *Stapletonia* with 2 species is reported from Arunachal Pradesh and *Munrochloa*, is reported from different states in Penninsular India. Among the major dominant genera with maximum number of endemic species, *Bambusa* is represented with 10 species in NE region and *Ochlandra* with 9 species in Western Ghats. 2 species of *Dendrocalamus* are from NE region and 1 each from North and Penninsular India. 3 species of *Cephalostachyum* is endemic to North eastern states Arunachal Pradesh, Meghalaya, Nagaland and Sikkim. *Melocalamus* and *Sinarundinaria* are having 2 endemic species to India found in NE region. Species of *Schizostachyum* are found in Andaman and Nicobar islands and out of



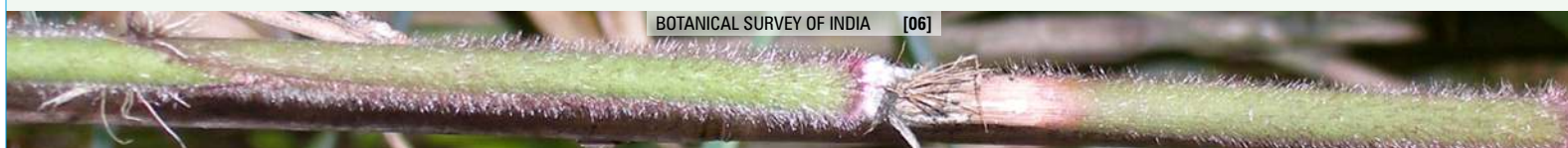
three species 2 are endemic to the country. Also genus *Dinorchloa* is restricted to the Andaman and Nicobar islands of which *Dinorchloa nicobariana* is an endemic species to the Nicobar Islands. Genera like *Chimonobambusa*, *Chimonocalamus*, *Drepanostachyum*, *Melocanna* and *Thamnocalamus* are having 1 species each endemic to NE India whereas *Pseudoxytenanthera* and *Teinostachyum* are having 1 endemic species from Kerala. 1 endemic species under *Gigantochloa* has been recently reported from Bastar district of Chhattishgarh.

### Conservation Assessment

The collection of information on the conservation status of endemic bamboos of India and their evaluation using the IUCN Red List Categories and Criteria (ver. 3.1) has been a challenging process.

In spite of the value of bamboos, they have not been subject to a complete and recent taxonomic revision and there is no Indian accepted checklist of the group. Given the size of the group and its geographic range, with natural populations often occurring in difficult to reach localities due to geographical isolation, political sensitivities or local security issues, and taxonomic impediment, this is perhaps to be expected. Various Floras of neighbouring countries and a number of taxonomic revisions carried out by the Botanical Survey of India to a range of regional or national floras were used to draw up the working list of bamboos to be evaluated against the IUCN Red List Categories and Criteria. In total, more than 100 bamboos have been studied and only 42 endemic bamboos have been preliminarily evaluated. A significant task in the evaluation of the bamboos was the development of distribution maps. For the bulk of the taxa evaluated as threatened, this is the first time that distribution maps have been published. In addition to expert opinions, a wide range of sources were consulted in the mapping process, including floras, national and regional bamboo experts, Red Data Books, herbarium specimen databases, field notes, online taxonomic databases and the scientific literature. Naturally the amount and the accuracy of the information for each taxon varied considerably.

A number of inherent characteristics of bamboos make mapping species and subsequent calculations of Area of Occupancy (AOO) and Extent of Occurrence (EOO) very challenging.

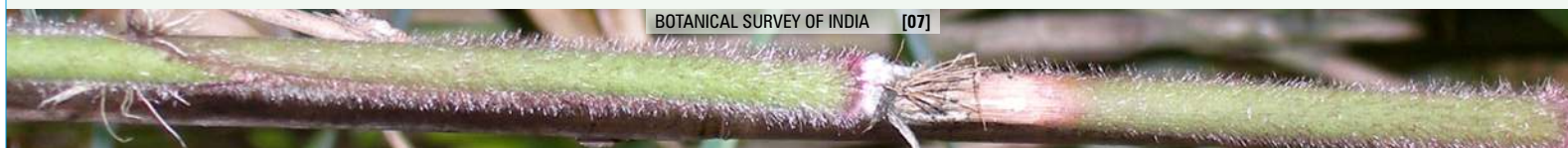


Most of the endemic bamboos have very restricted distribution. For each species considered, a single map was generated using Arc Editor 10 Geographic Information System (GIS) (ESRI, <http://www.esri.com/>) software. It had been initially hoped that we would be able to draw polygon distribution maps, but due to the number of maps required, and the often very localized and fragmented occurrence of bamboo populations, combined with limited accurate distribution data, this was not possible. The resulting maps show the known points of occurrence, often where herbarium specimens have been collected, in order to give an indication of where the species occurs. The maps do not always indicate the full range of the species. Due to the nature and limitations of the maps many assessments have required that the EOO and AOO be estimated based on our knowledge and experience of the species in question and the habitats concerned.

This assessment tries to focus and guide conservation policy and action at both the ecosystem and species level. Urgent action is required to conserve the most threatened bamboos, in particular those assessed as Critically Endangered, some of which are reduced to literally a handful of clumps. Ideally all the threatened bamboos should be represented in well-managed ex situ collections as an insurance policy against possible extinction and as part of fully integrated conservation plan. The Global Strategy for Plant Conservation (GSPC) calls for 75 per cent of all threatened plants to be conserved in ex situ collections.

Further research will no doubt strengthen and improve our understanding and ability to conserve Indian bamboos; however based on sufficient existing knowledge action needs to start now.

This handbook provides comprehensive information of the endemic bamboo species found only in Indian territories. With a brief description of identifying characters of the species, accompanied with their illustrations or the photographs, local names, habitat and occurrence, information of flowering and new shoots, distribution with map and specific notes on conservation status. The book is hopefully a useful guide for the identification and conservation of these important species.





# INDIA



1. **Bambusa alemtemshii** H.B. Naithani, in Indian Forester 133(11): 1575. 2007.

Type: Longsa Village, Mokokchung District, Nagaland, India, 5.12.2004, H.B. Naithani 4338 (Holo DD).

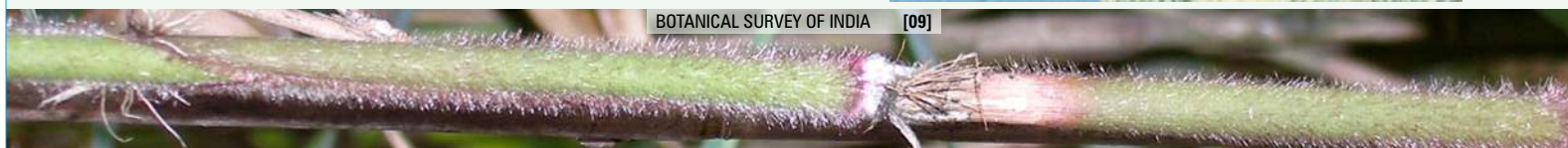
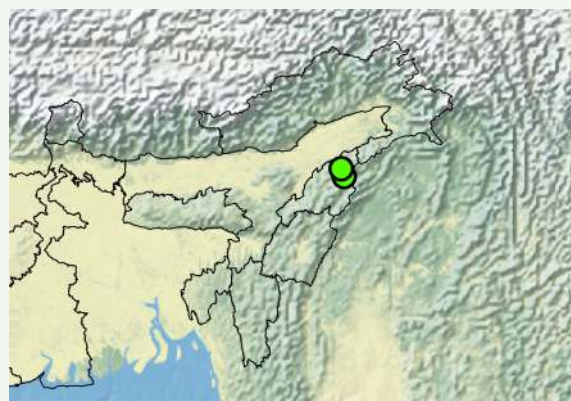
Vern.: 'Alulem' (Ao).

A tall bamboo about 10 m high, *nodes* prominent, raised with a white ring, not much branched; *culm sheaths* stiff, variable in size, outer surface glabrous, imperfect blade with wavy depressions, rounded at the base, and then decurrent on the sheath in a narrow band; acute at the apex, finally ending on both sides in small round auricles which is fringed by stiff bristles, sometimes one auricles hidden on opposite side; *ligule* 0.5 cm broad, dentate.

*Distribution*: Assam, Nagaland.

*Note*: Allied to *Dendrocalamus hamiltonii* but differs in having auricles in culm sheaths and thick culm.

*Conservation status*: VUD2. A tall bamboo in open forests known from few sites on Assam, Nagaland border.



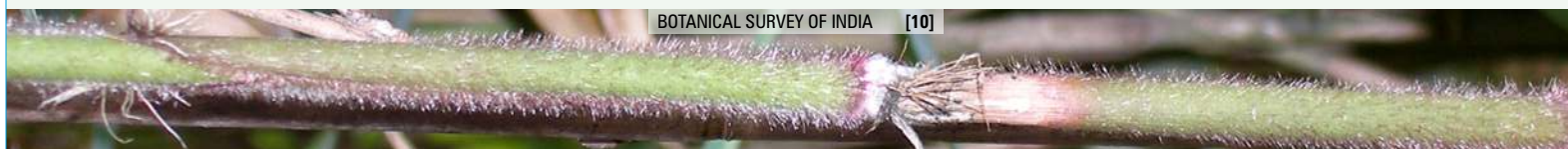
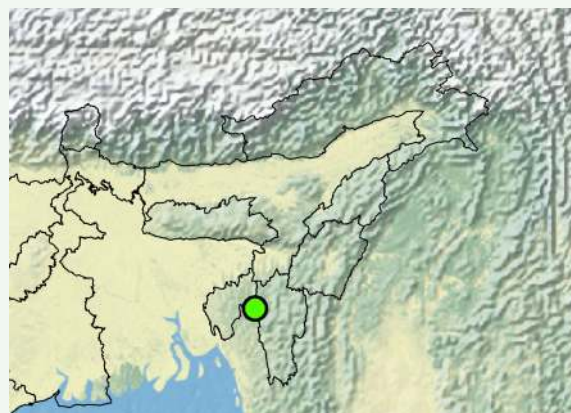
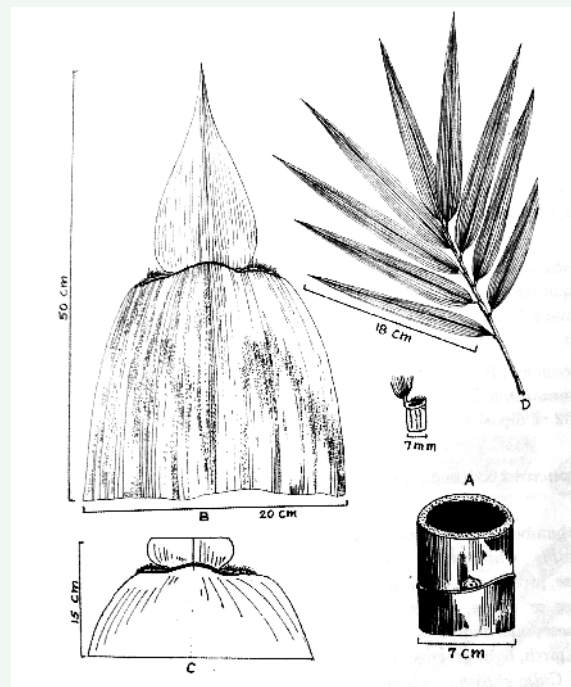
2. **Bambusa dampaeana** H.B. Naithani, Gabryal & Bisht, in Indian Forester 136(7): 991–992. 2010.

Type: Teirei, on way to Dampa, Mizoram, India, 11.12.2009, H.B. Naithani 4344 (Holo DD).

A caespitose bamboo. *Culms* about 8 m high. *Young culms* white ashy; *nodes* rooting at the base, prominent, without any white band below or above, oblique, few branched at the base; *culm sheaths* clothed with appressed brown-black hairs on outer surface; *auricles* very fragile, caduceus, fringed by 5–7 mm long bristles; rim 4 mm high; *ligule* dentate, 2 mm broad; leaf sheath *ligule* elongate, obtuse, light brown.

*Distribution*: Mizoram, Dampa.

*Conservation status*: CRB1ab(iii)+2ab(iii). So far known from one site in Mizoram in Dampa Tiger Reserve. Species lacks stable population status as no further data, not even the type material is available for study.





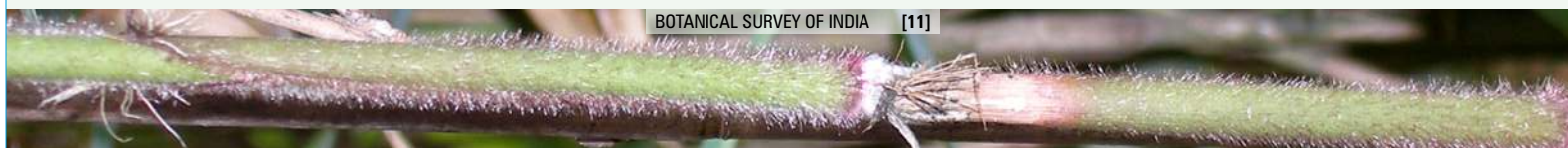
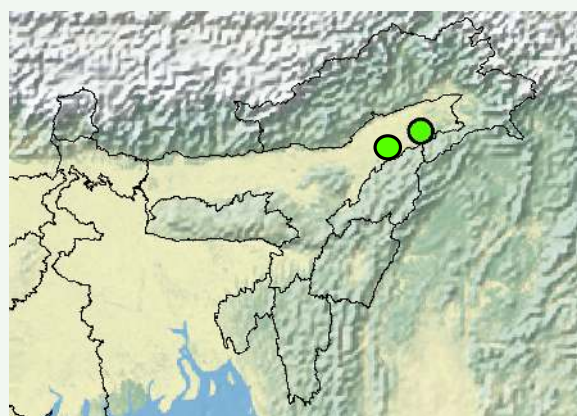
3. **Bambusa garuchokua** Barooah & Borthakur, in Indian J. Forestry 24(4): 506-508. 2001.

Type: Barpathar No.1, Lakhimpur, Assam, India, 7.7.1996, C.Barooah 2505 (Holo ASSAM); Chapor, Dhubri, Assam, India, 8.3.1998, C.Barooah 2567 (Para Gauhati University Herb., Guwahati).

*Culms* 10-15 m high, 5-10 cm in dia., glabrous, green when young, greyish on maturity, mostly lower 2nd to 5th internodes abruptly bent horizontally; *nodes* up to 8th from the ground with many, long rootlets, sometimes two nodes develop together without having intermodal space; *culm sheaths* with dark brown hair on outer surface, *imperfect blade* reniform; *auricles* unequal, wavy, fringed, deccurent on sheath.

*Distribution*: Assam.

*Conservation status*: VUD2. So far known from two site in Assam. Species lacks stable taxonomic status as no further data is available for study.



4. **Bambusa majumdarii** P.Kumari & P.Singh, in Kew Bull. 64(3):565. 2009.

Type: Near Tura, Garo Hills, Meghalaya, India, 14.9.2005, P.Kumari & P.Singh 34696 (Holo CAL; Iso ASSAM).

Vern.: 'Wa-nari' (Garo).

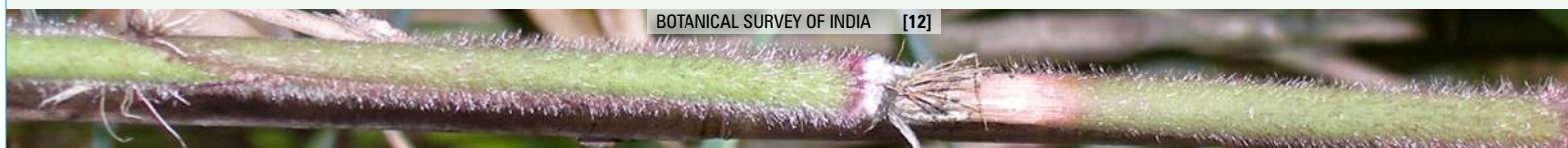
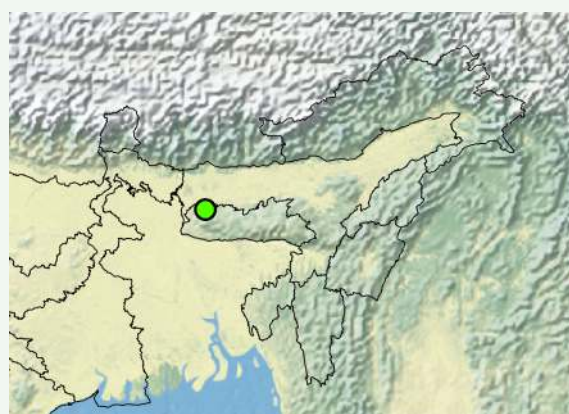
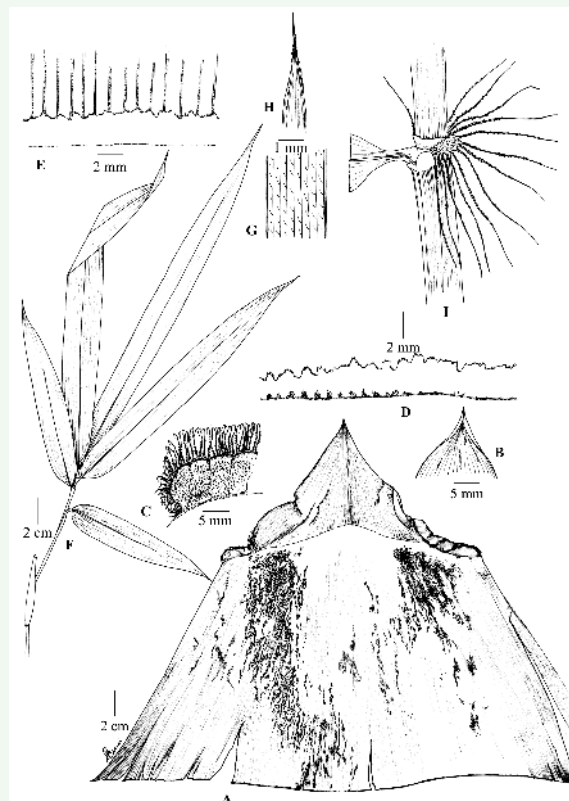
Clump forming arboreal bamboos. Culms ca 10 m high, 5-8cm in dia., light green with white pruinose deposition; nodes even; culm sheaths broader than long, whitish green with white stripes when young; auricles dissimilar, continuing with base of blade, wavy, pubescent on outer surface and fringed with dense ciliolate bristles; leaf sheath auricles crescent shaped, reflexed, bearing 1 cm long bristles and 1-2 mm tall oblique ligule.

New shoots: August – September. Whitish green, with white striped culm sheaths.

Habitat: Reported from borders of evergreen forests between 1200-1400 m.

Distribution: Meghalaya.

Conservation status: CRB1ab(iii)+2ab(iii). So far known from one site in Meghalaya. Species lacks further data for study.





5. **Bambusa manipureana** H.B. Naithani, in Indian Forester 136(2):262-263. 2010.

Type: 10 km before Moreh, Manipur, India, 11.10.2008, H.B.Naithani 5011 (Holo DD).

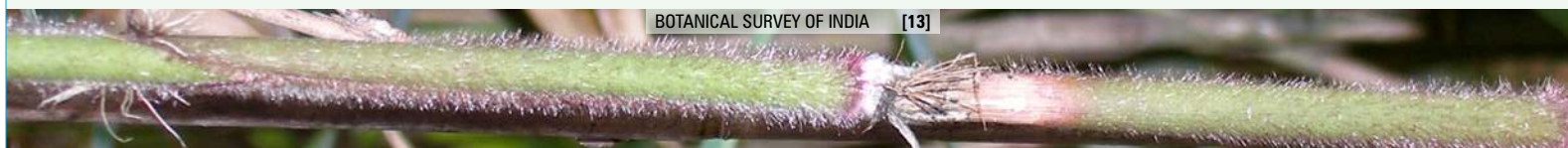
Vern.: 'Lawom', 'Uying' (Chote Tribe); 'Uma' (Manipuri).

Young shoot pale orange; culms ca 5 m tall, 10-20 cm in girth, distant; nodes prominent, oblique, raised, with two white bands on both sides, branching from the basal nodes; branches covered with brown sheaths, middle branch very thick; internodes generally dark greyish to deep green, covered with dense dark brown scurfy hairs throughout; culm sheath covered with dark brown hairs, auricles wavy, decurrent with the blade and with long brown bristles on the margins,

Distribution: Manipur.

Note: Allied to *Bambusa tulda* Roxb., but differs from it in much branchy habit, dark purplish culms covered with dense dark brown scurfy hairs and imperfect blade base overlapping the auricles.

Conservation status: VUD2





6. **Bambusa mohanramii** P.Kumari & P.Singh, in Kew Bull. 64(3):567. 2009.

Type: Khleiricht, Jaintia Hills, Meghalaya, India, 9.4.2004, P.Kumari 34608 (Holo CAL; Iso ASSAM).

Vern.: 'Seij' (Jaintia).

Clump forming arboreal bamboos. *Culms* ca 10-12 m high, 5-6 cm in dia., green with dull matty deposition; *nodes* with white ring below and rootscars above nodal line; *culm sheaths* triangular, glabrous; *auricles* similar, short, rounded with two smaller lobes on either sides, short ciliate; *leaf sheath auricles* obscure, mouth end 2 mm long cilia.

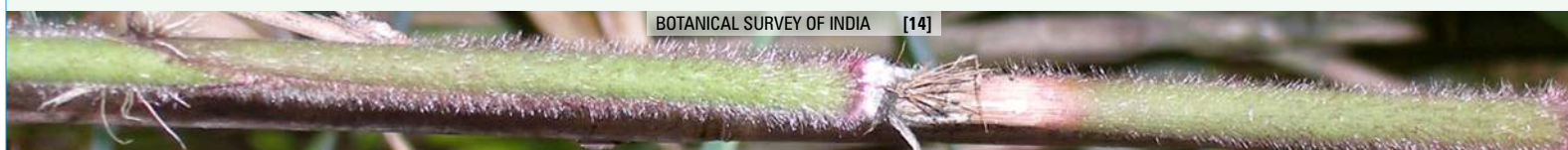
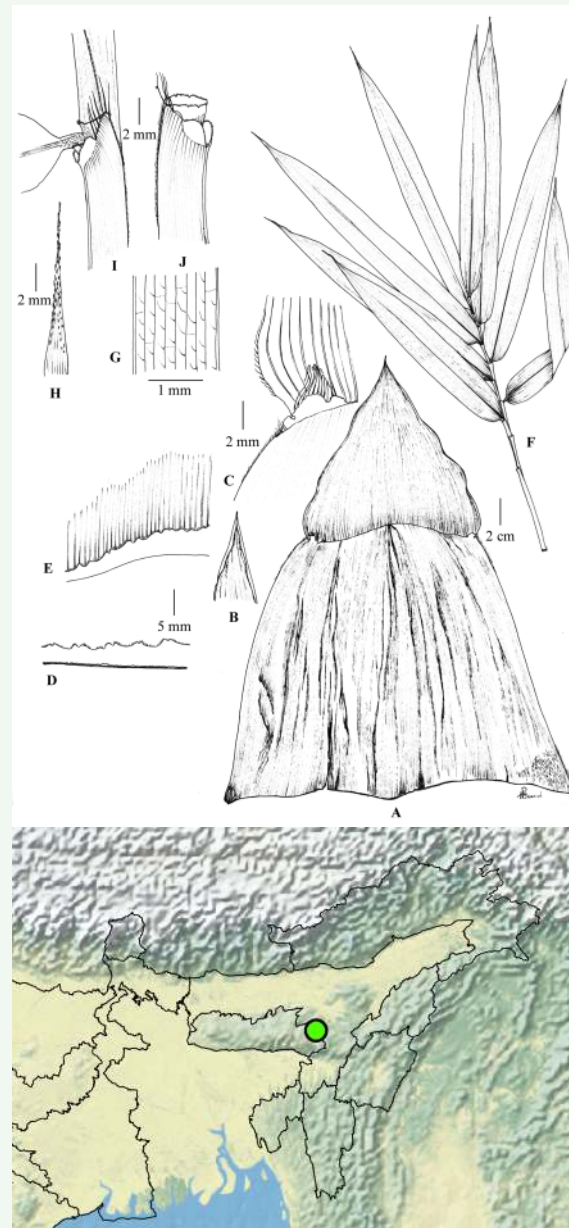
New shoots: August–September.

Flowering: September–March. Sporadic.

*Habitat*: Found between 1200-1500 m along road sides, also cultivated.

*Distribution*: Meghalaya.

*Conservation status*: CRB1ab(iii)+2ab(iii). So far known from one site in Meghalaya. Species lacks further data for study.



7. **Bambusa nagalandeana** H.B. Naithani, in Indian Forester 133(9): 1267-1269. 2007.

Type: Wanching Village, Mon District, Nagaland, India, 9.12.2004, H.B. Naithani 4344 (Holo DD).

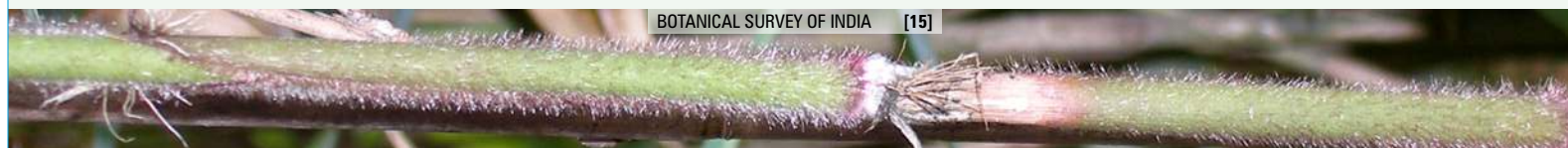
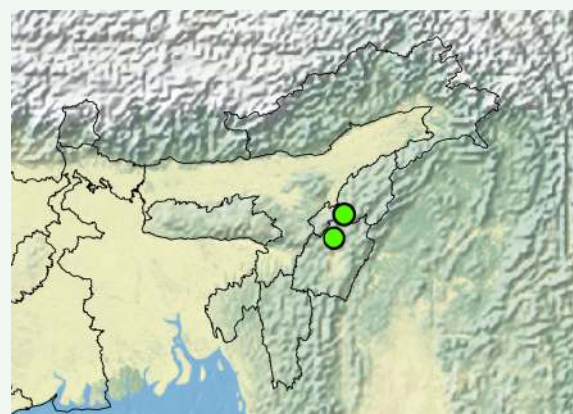
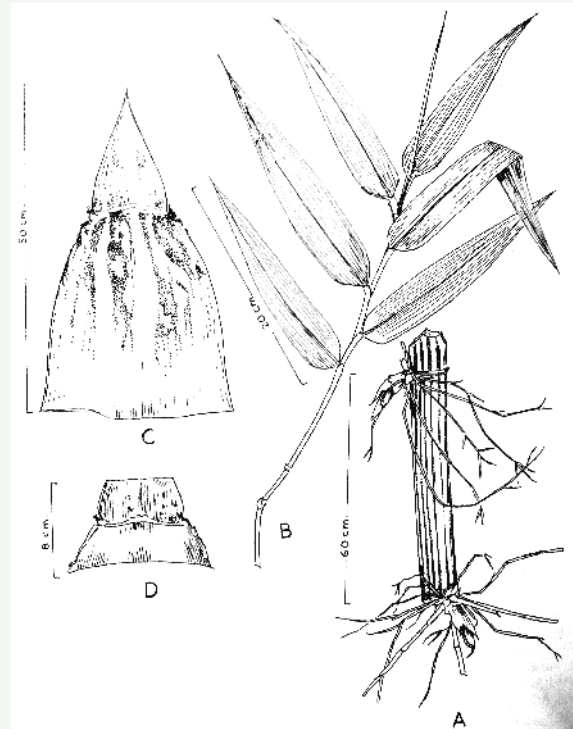
Vern.: 'Latnyan' (Konyak).

A bamboo 12 m high, sympodial, branching at base, slightly zig-zag. Nodes with two white bands on upper and lower side, prominent, raised, oblique; internodes yellow with green stripes throughout; culm sheaths with scanty patches of dark brown appressed hairs, truncate at the top; imperfect blade triangular, base decurrent into rounded very small auricles; leaf sheath ligule prominent, fimbriate.

Distribution: Nagaland, Mizoram.

Note: Due to yellow culms with green stripes this species is very valuable for ornamental purposes. This species is also found growing at upper Sakawrdai area, Aizawl District, Mizoram.

Conservation status: VUA2cd.



8. **Bambusa nairiana** P.Kumari & P.Singh, in Bull. Bot. Surv. India 50:13. 2008.

Type: Near Nokrek, Garo Hills, Meghalaya, India, 14.9.2005, P.Kumari & P.Singh 34698 (Holo CAL; Iso ASSAM).

Vern.: 'Wa-sim' (Garo).

Clump forming arboreal bamboos. Culms ca 10 m high, 6-8 cm in dia., green with brown appressed hair; nodes even, with white ring above nodal line; culm sheaths triangular, brown-blackish hair appressed on outer surface; auricles similar, short, elliptical, low, below ligule height, with few minute cilia; leaf sheath auricles obscure.

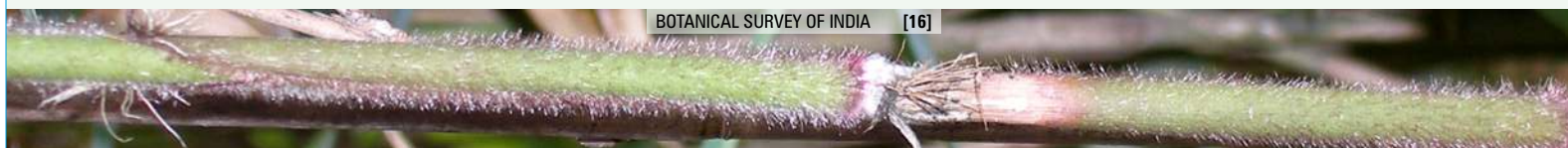
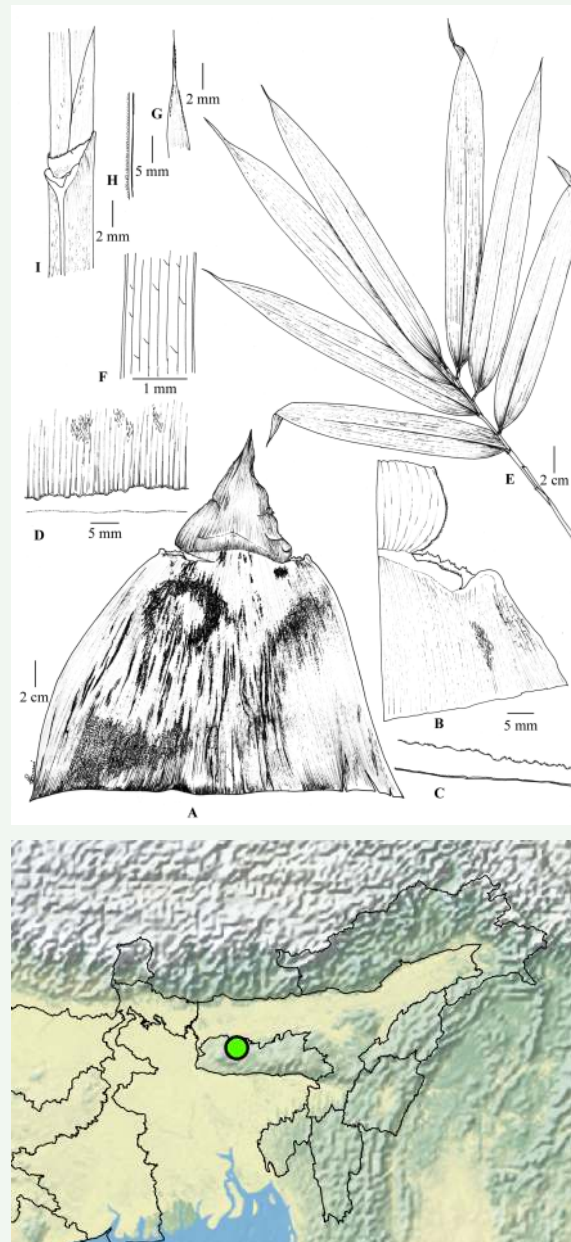
New shoots: May–June.

Flowering: August–September. Sporadic.

Habitat: Found between 1400-1500 m along forest border, also cultivated.

Distribution: Meghalaya.

Conservation status: CRB1ab(iii)+2ab(iii).





9. **Bambusa pseudopallida** R.B. Majumdar in S. Karthikeyan & al., Fl. Ind. ser. 4. 1 (Monocotyledon): 275. 1989.

Type: India: Umtaph on Dawki-Jarain Road: N.P. Balakrishnan 42700 (CAL).

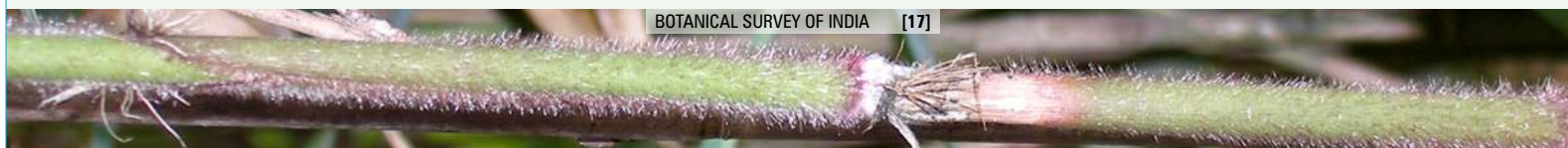
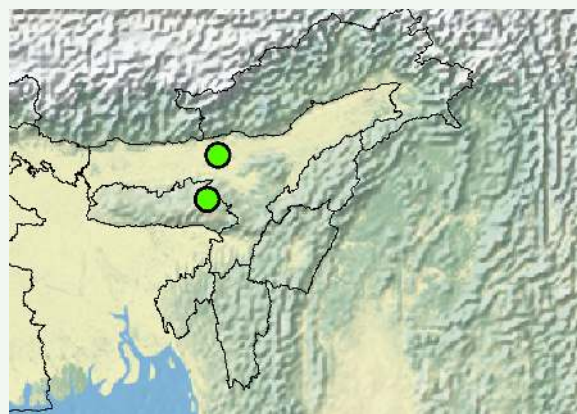
Culms light green, with white powdery mass, ca 6-7 m tall, 1.5-3 cm in dia.; nodes even; internodes glabrous smooth; culm sheaths glabrous, ciliate at margins, with broader and longer, leaf like imperfect blade; auricles small rounded, fringed with straight bristles.

Flowering: June. Reported in 1965 from Khasi hills.

New shoots: June – August.

Distribution: Meghalaya, Assam.

Conservation status: VUD2.



10. **Bambusa tulda** Roxb. var. **gamblei** P.Kumari & P.Singh.  
Bamboos of Meghalaya p. 58. 2014.

Type: Near Nokrek, Garo Hills, Meghalaya, India,  
14.9.2005, P.Kumari & P.Singh 346700 (Holo CAL).

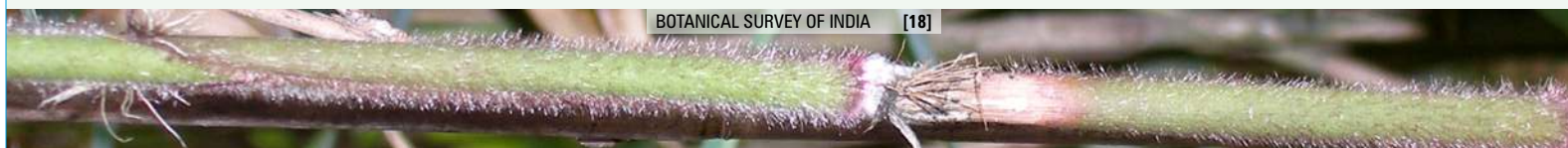
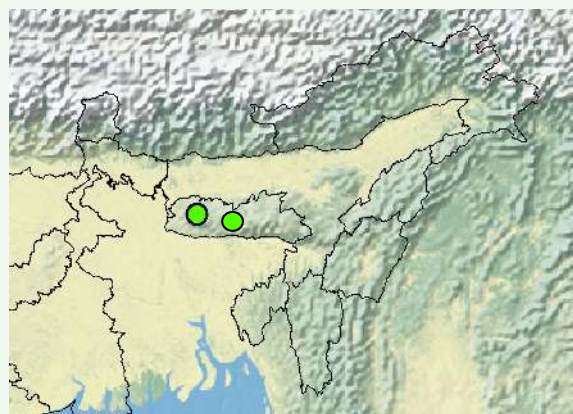
Clump forming arboreal bamboos. *Culms* ca 10-15 m high, 5-6 cm in dia., smooth, dark green with white powdery deposition; *nodes* even; *culm sheaths* triangular, blackish hair appressed on outer surface, with longer imperfect blade; *auricles* dissimilar, undulated, with 5 mm long fine bristles; leaf sheath *auricles* roundedly elongate, bearing 5 mm long straight bristles.

New shoots: June – July.

*Habitat*: Found between 1000-1500 m in or along borders of evergreen forests, also cultivated.

*Distribution*: Meghalaya.

*Conservation status*: CRB 1 ab(iii)+2ab(iii).





11. **Cephalostachyum capitatum** Munro var. **decompositum** Gamble. Ann. Roy. Bot. Gard. (Calcutta) 7: 105. 1896 (as "decomposita")

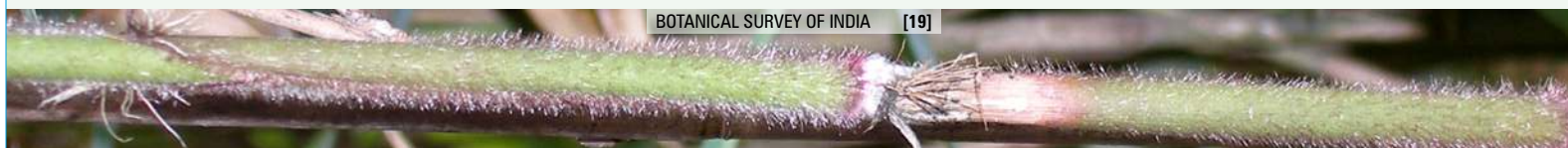
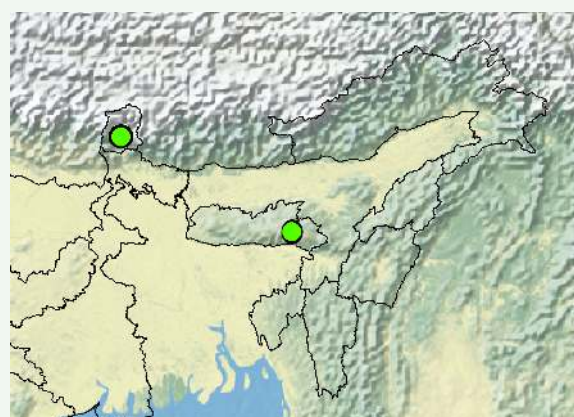
Type: India: Sikkim: T. Anderson & Kurz s.n.

*Schizostachyum capitatum* (Trin.) Rupr. var. *decompositum* (Gamble) R.B. Majumdar in S. Karthikeyan & al. Fl. Ind. ser. 4. 1 (Monocotyledon): 281. 1989.

A sub-arborescent semi scandent bamboo. Culms 4-10 m long, pendulous; nodes even; internodes often 1 m or more long, 2.5-3 cm in dia.; culm sheaths 15-30 cm long, 5-7.5 cm broad, thin, covered on back with pale-brown pubescence; imperfect blade long, erect or reflexed, hairy inside; auricles small, elliptical, fringed; leaf sheath glabrous, shining. Inflorescence dense, globular, terminal or axillary head; spikelets arranged in spicate clusters with many fertile florets.

Distribution: Sikkim, Meghalaya.

Conservation status: DD





12. **Cephalostachyum longwanum** H.B. Naithani, in Indian Forester 136(3): 406-407.2010.

Type: Longwa Village, Mon District, Nagaland, India, 8.12.2004, H.B.Naithani 4343 (Holo DD).

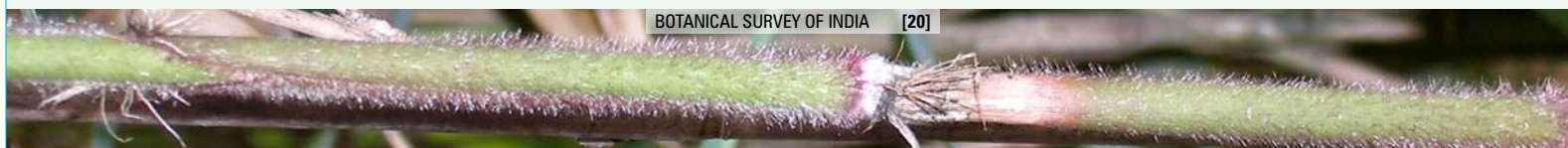
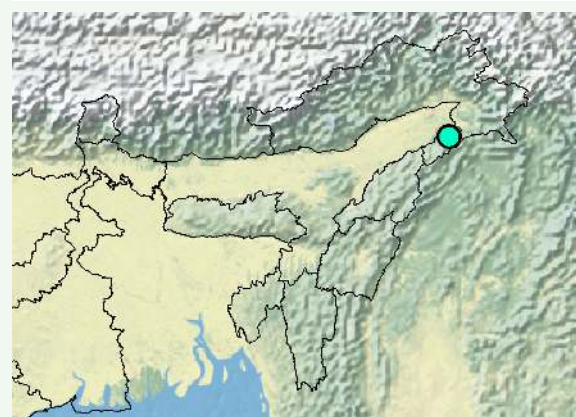
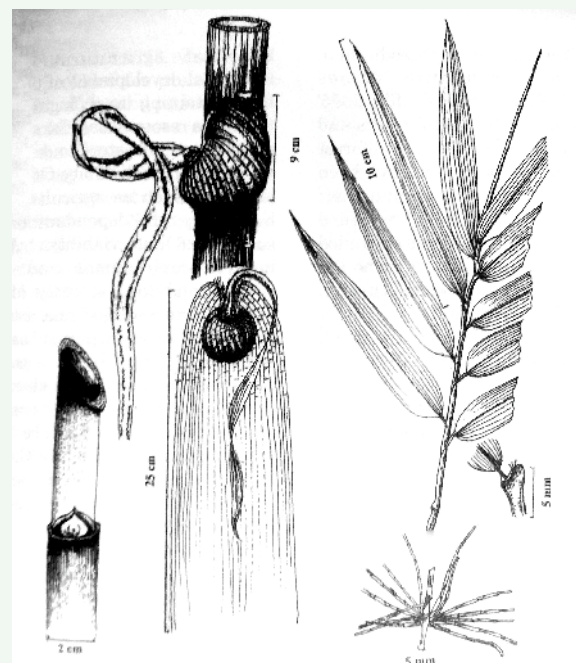
Vern.: 'Nahnyii' (Konyak).

A semi scandent bamboo. Young shoots purple, oozing red sap; branches whorled at upper nodes, many; nodes whitish below, raised, oblique; bud papery, broad, margins membranous; Culm sheaths dark brown, with prominent lines or veins, rounded at the apex on each side into a deep concave bristly fringed sinus, below the sinus the sheath is swollen like a purplish black pouch, edges at apex with reticulate veins, young sheaths cylindrical, mouth of sinus furnished with long brown, stiff, hairs; imperfect blade inserted at the base of sinus, curled; ligule very small.

Distribution: Nagaland.

Note: In the Longwa village this bamboo gives edible young shoots throughout the year.

Conservation status: CRB1ab(iii)+2ab(iii).



13. **Cephalostachyum mishimieanum** H.B. Naithani, in Indian Forester 140(7): 733-734. 2014.

Type: 5 km after Udayak Pass, way to hayuling, 1200m, Lohit District, Arunachal Pradesh, India, 29.4.2012, H.B.Naithani 5241 (Holo DD); Hunli, 1300m, Upper Dibang Valley District, 11.8.2012, H.B.Naithani 5293 (Para DD).

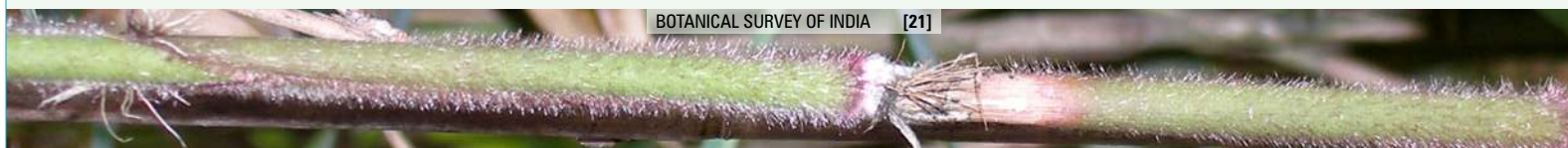
Vern.: 'Kapit', 'Kapi' (Digaru Mishimi); 'Apito' (Edu Mishimi).

A caespitose bamboo about 7 m tall, then straggling; nodes raised, brown, with groove in the middle, oblique; internodes 60-80 cm long, 18-15 cm in girth, deep green with a white band near the node; culm sheaths covered on with the golden brown hairs, rounded at the top on each side into a concave broad bristly sinus, just below the sinus sheaths swollen like a pouch; imperfect blade inserted at the middle of the sinus, spiral, reflexed, covered with dense dark brown hairs on under surface; ligule very prominent, fimbriate.

Distribution: Arunachal Pradesh.

Note: Allied to *Cephalostachyum fuchsianum* Gamble, but differs having large culm sheaths, swollen near the sinus and-covered with golden brown hairs; imperfect blade spiral, covered with dark brown hairs on under surface; leaves small with long acuminate apex.

Conservation status: VUD2





14. **Chimonobambusa arunachalensis** Sharma & Borthakur, in Pleione 2(1): 1-2. 2008. *Chimonobambusa jainii* Sharma & Borthakur, in J. Econ. Taxon. Bot. 32(1): 783-785. 2008.

Type: Ziro, Lower Subansiri District, Arunachal Pradesh, India, 08.05.2006, T.P. Sharma TP0140A (Holo Herb. Botany Department Gauhati University, Guwahati).

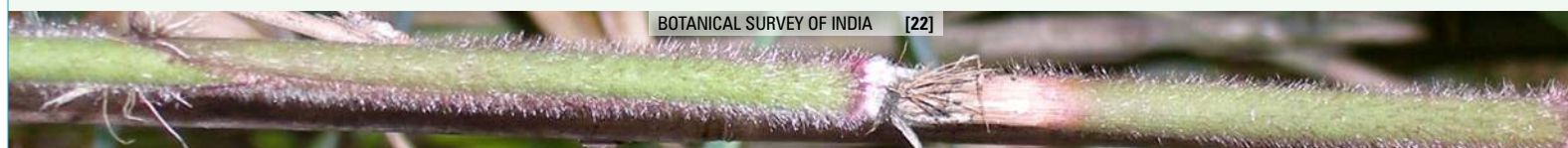
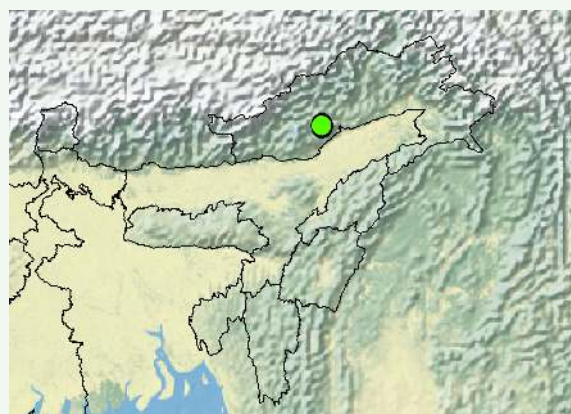
Vern.: 'Rizang' (Apatani Tribe).

Evergreen, shrubby, erect, thorny, single-stemmed. Culms 2-3m in high, 1-1.5cm diameter, slightly scabrous, grayish green or yellow on maturity; nodes swollen, fringed with soft brown hairs and studded with short, thick conical spines; internodes 14.5-20cm long, walls thick; culm sheaths deciduous, variable in size, gradually attenuate upwards to 0.4cm broad mouth with long bristles on both sides, edges ciliate, striate, covered with bulbous-based hairs on the outer surface; imperfect blades. 2-1 cm long, striate, subulate; auricles absent; ligule short, fimbriate.

Habitat: Rarely occurring on hill slopes.

Distribution: Arunachal Pradesh.

Conservation status: VUD2





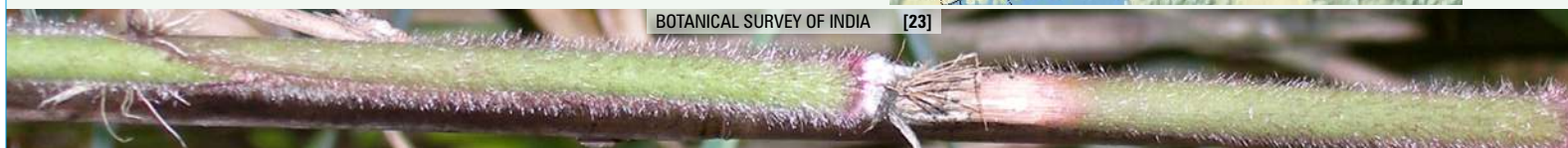
15. **Chimonocalamus lushaiensis** Ohnrb. Bamboos of the World Intro. 314, 1996. *Sinarundinaria longispiculata* C.S. Chao & Renvoize. Kew Bull. 43: 411, 1988.

Type: India: Assam, Sangao, Lushai Hills, 1300 m, Mar 1953, Thakur Rup Chand 6889 (K).

*Culms* erect; *nodes* raised, ringed with root thorns and velvety hair below nodal line; *leaves* 2-3 on flowering branches, leaf blades long acuminate at apex, tessellate; *leaf sheaths* ciliate at margins when young, glabrous at maturity, with small *auricles* and erect oral setae, *ligule* conspicuous.

*Distribution*: Mizoram.

*Conservation status*: CRB1ab(iii)+2ab(iii).



16. **Dendrocalamus manipureanus** H.B.Naithani, in Indian Forester 136(2): 262-265. 2010.

Type: Sinaiveng, Moreh, Manipur, India, 10.10.2008, H.B.Naithani 5007 (Holo DD).

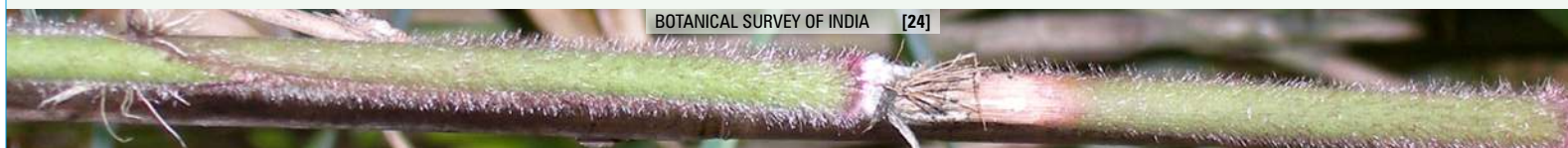
Vern.: 'Nango' (Kuki); 'Ooe', 'Oei', 'Ui' (Manipuri); 'Ruv' (Thankul).

Young shoots covered with dark brown hairs. Culms 15-20 m high, caespitose, deep green.; nodes prominently rooting up to 10 internodes, raised, oblique, having a narrow white band on lower side; culm sheath covered with dark brown hairs on the back, near the edges faint white streaks are present; imperfect blade very variable in length and size, right angled to the culms or reflexed; ligules conspicuous, 2 mm broad fimbriate.

Distribution: Manipur.

Note: Allied to *Dendrocalamus hamiltonii* Nees & Am. ex Munro but differs in having strong culms; the top of young culms not clambering; culm sheath on upper surface with white streaks near the edge; ligule of culm sheath fimbriate.

Conservation status: CRB1ab(iii)+2ab(iii).





17. ***Dendrocalamus sahnii*** H.B. Naithani & Bahadur.  
Indian Forester 108(3): 212. f. 1. 1982.

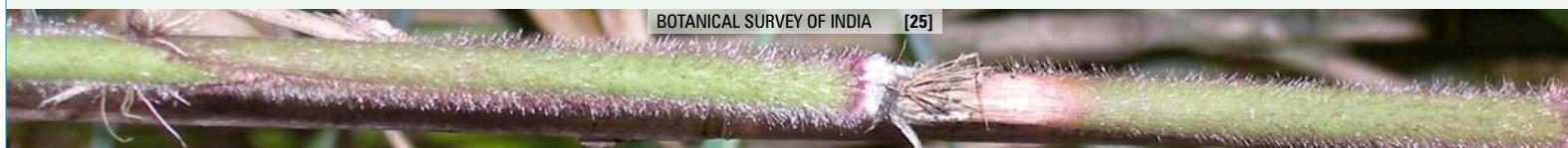
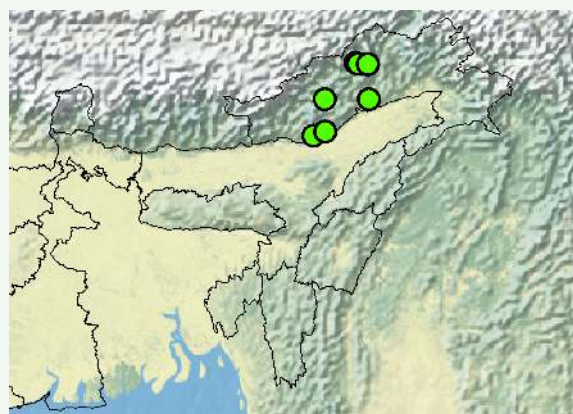
Type: India: Arunachal Pradesh, Subansiri District, Zoram,  
alt. 6000 ft., April 28. 1977, H.B. Naithani serII no. 902 (DD).

Culms up to 10 m tall, 5-6 cm in diam., pale green,  
internodes glabrous, smooth. Culm sheaths variable in  
size, glabrous-shining within, rough with scattered stiff  
brown hairs outside, truncate at the top; imperfect  
blades 2-2.5 long, ovate-lanceolate; ligule toothed or  
fimbriate.

*Distribution:* Arunachal Pradesh.

*Note:* Allied to *Dendrocalamus hamiltonii* but differs in  
having thinner culms, toothed or fimbriate ligule of culm  
sheaths, larger spikelets, yellow with a short hairy point  
and a single stigma.

*Conservation status:* CRB1ab(iii)+2ab(iii).





18. ***Dendrocalamus somdevae*** H.B. Naithani. Indian Forester 119(6): 504. 1993.

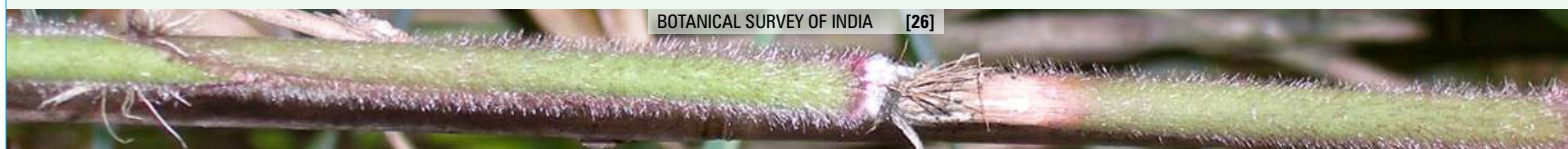
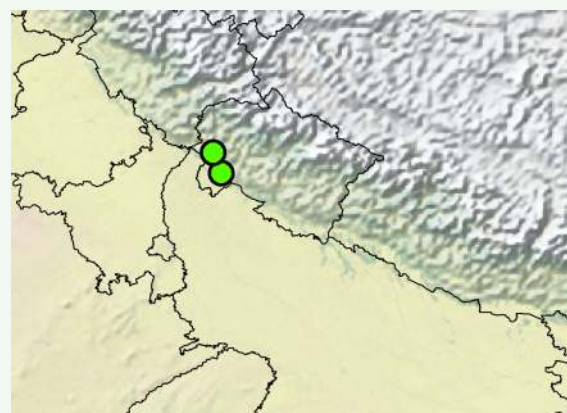
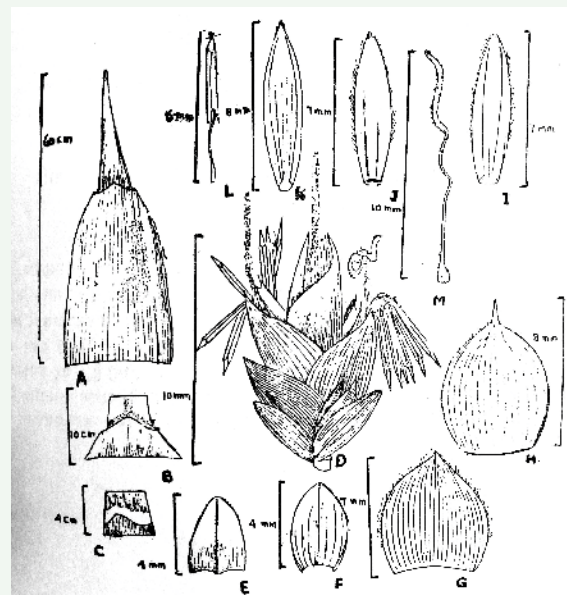
Type: Hardwar Road between Jogiwala and Majri (Mokhampur), Dehra Dun, 11.3.1991; Som Deva 10985 (Holo DD); H.B.Naithani 1694 (Para DD); Circuit house Almora (Kumaun), 9.8.1991, H.B.Naithani 1722 (Para DD).

Culm 12-20 m high, 6-7 cm in diameter, greyish-white with dense appressed pubescent; nodes raised, lower ringed with rootlets; culm sheath longer than internodes, glabrous or covered with patches of stiff blackish-brown hairs on outer surface; imperfect blade variable in size; ligule dentate.

*Distribution:* Uttarakhand.

*Note:* Allied to *Dendrocalamus hamiltonii* but differs in having ligule of culm sheaths dentate, anther tips apiculate, glabrous and single stigma.

*Conservation status:* CRB1 ab(iii)+2ab(iii).



19. **Dinochloa nicobariana** R.B. Majumdar in S. Karthikeyan & al., Fl. Ind. ser. 4. 1 (Monocotyledon): 277. 1989.

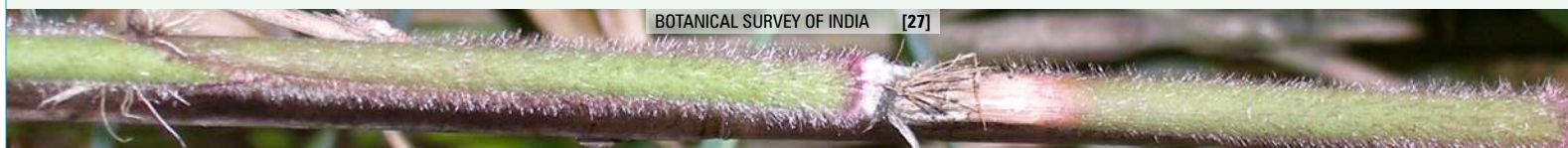
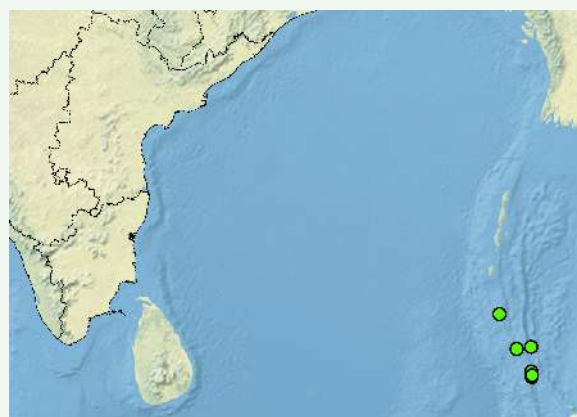
Type: India: Nicobar Island, North Nicobar, Katchal Island, Coastal Forest, P. Chakravarty 1129 (CAL).

An evergreen lofty climbing bamboo. Culms geniculate, scabrid, dark green with appressed hair; nodes swollen, ringed with the persistent base of the fallen sheath, often rooting; internodes 20-45 cm long or more, 2-3 cm in dia.; culm sheath convolute, small, less than 1/4<sup>th</sup> of the internodes, nearly glabrous; imperfect blade leafy, equal or longer than sheath proper, reflexed, deciduous; auricles obscure, mouth end with straight, white bristles; ligule initially lacerate becoming entire after fall of the bristles; branches with one developing as thick as the culm and other thin smaller ones.

*Habitat*: One of the most dominating climbers of the evergreen tropical forests in the Nicobar group of Islands.

*Distribution*: Nicobar Islands.

*Conservation status*: LC





20. **Drepanostachyum suberectum** (Munro) R.B. Majumdar, Bull. Bot. Surv. India 25(1-4): 236. 1985.

*Lectotype*: India: Meghalaya, Mamlo, October 27. 1835, Griffith 558 (K).

*Vern.*: 'Nam-long' (Kh.), 'Lomb-nag' (Jaint.).

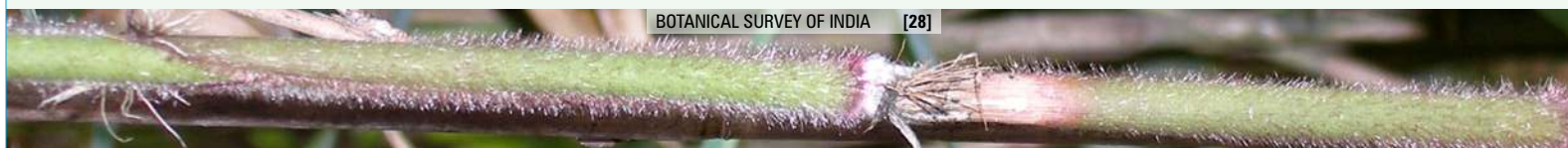
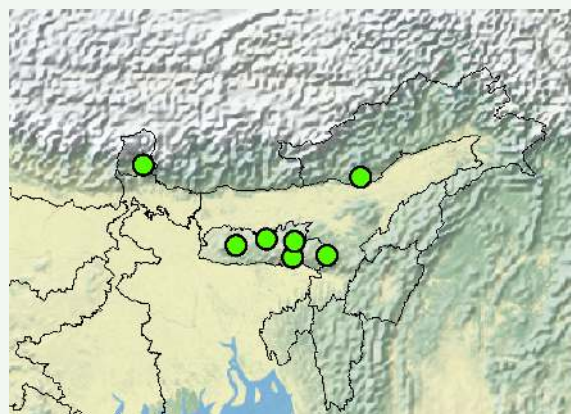
Densely clumped, shrubby bamboos. *Culms* ca 3-4 m tall, 6-7 mm in dia., purplish green with white powdery deposition; *nodes* raised with ca 1-1.5 mm sheath scar ring; *branches* 20-50, subequal, thin, geniculate; *culm sheaths* elongated, thin, striate, sparse golden hair appressed on outer surface; *imperfect blade* subulate, reflexed; *ligule* ca 2 mm tall, notched, hairy on both surfaces; *auricles* minute, ciliate; leafsheath *auricles* obscure or rounded and reflexed, with 2-3 mm long bristles.

*New shoot*: April – May.

*Habitat*: Mostly found between 1000 – 1600 m in sub tropical- warm temperate zone, gregarious along river and water streams sides and common in hill forests.

*Distribution*: Meghalaya, Arunachal Pradesh, Sikkim.

*Conservation status*: LC





21. ***Gigantochloa bastareana*** H.B. Naithani & R.C. Pal, in Indian Forester 136(9): 1276-1277. 2010.

Type: Dandak Gupha, Kanger Valley National Park, Bastar, Chhattisgarh, India, 02.11.2004, H.B. Naithani 4298 (Holo DD).

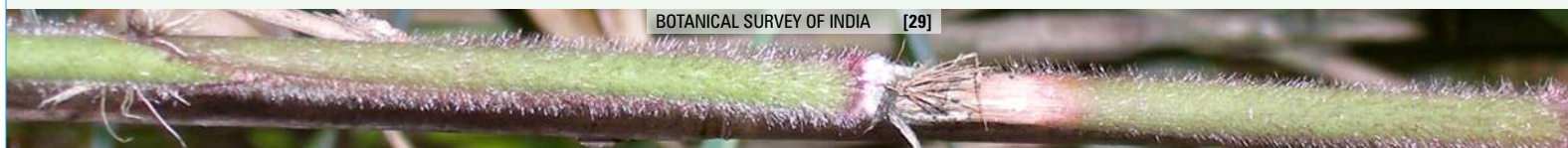
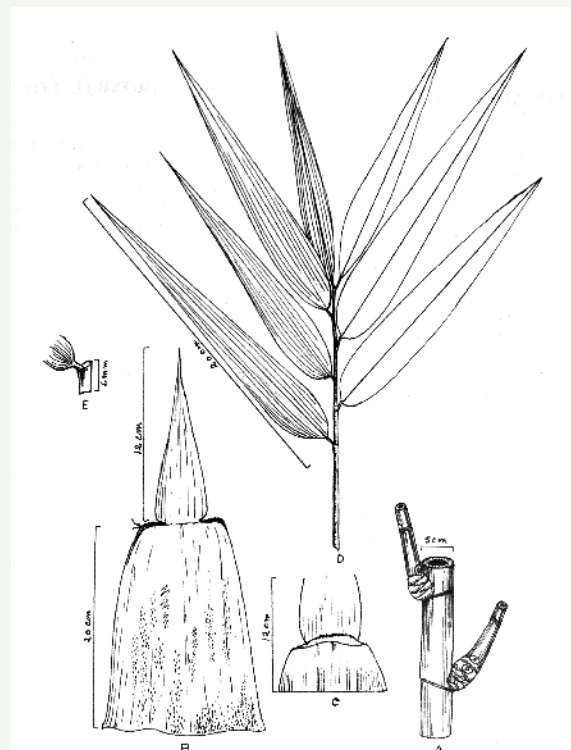
Vern.: 'Peeta' (Kanger valley).

A caespitose bamboo. Culms straight, upto 10 m tall; nodes oblique with brown hairs, slightly raised; branch generally single, 7.5 cm in girth, swollen at the base; culm sheaths shining, yellow at maturity, sparsely covered with bulbous based brown hairs, under surface glabrous very shining, edges at the apex with reticulate veins. imperfect blade elongated conical; auricles indistinct small, dark brown 2 cm long, 1-2 mm high, sometimes with 1-2 cilia at the edge; ligule conspicuous, upto 1 cm broad, fimbriate.

Distribution: Chhattisgarh.

Note: Differs from *Gigantochloa albociliata* (Munro) Kurz in having narrow ligule of culm sheaths; imperfect blade of culm sheaths elongated, not reflexed.

Conservation status: CRB 1 ab(iii)+2ab(iii).



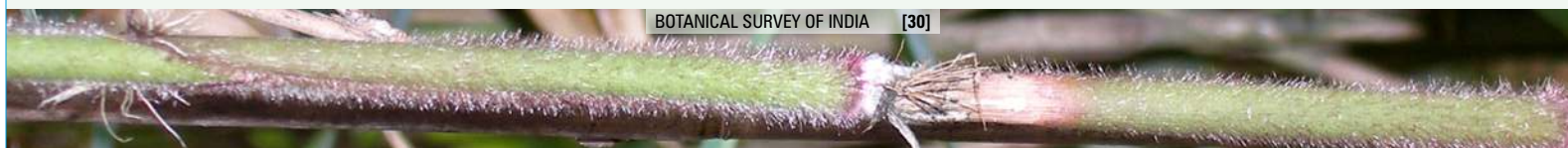
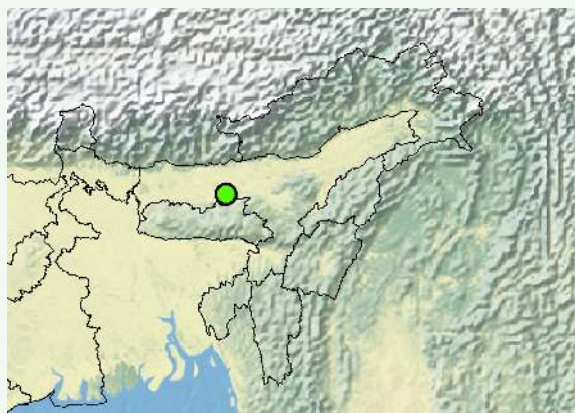
22. **Melocalamus gracilis** R.B. Majumdar in S. Karthikeyan & al., Fl. Ind. ser. 4. 1 (Monocotyledon): 278. 1989.

Type: India: Barail Range, near Kailana 9 km from Gumri rest house on Shillong-Cachar Road near P.W.D. Shed; R.B. Majumdar 1138 (CAL).

Scandent bamboo with culms arching over trees and then hanging down; *nodes* swollen, girdled with the fallen base of the sheath, white ringed below and above the nodal line; *inter nodes* glabrous; *culm sheath* cylindrical, glabrous, smooth; *imperfect blade* lanceolate, reflexed, as long or shorter than sheath proper; *auricles* very small, rounded, ciliate, deciduous; *nodal bud* acute; *branches* many smaller with one dominant.

*Distribution*: Assam.

*Conservation status*: CRB1ab(iii)+2ab(iii).





23. **Melocalamus indicus** R.B. Majumdar, Bull. Bot. Surv. India 25(1-4): 236. 1985.

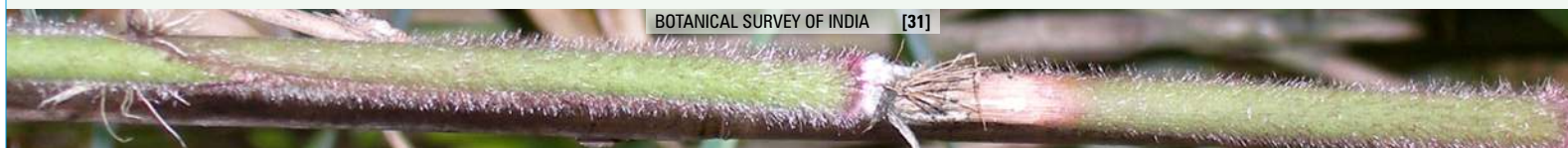
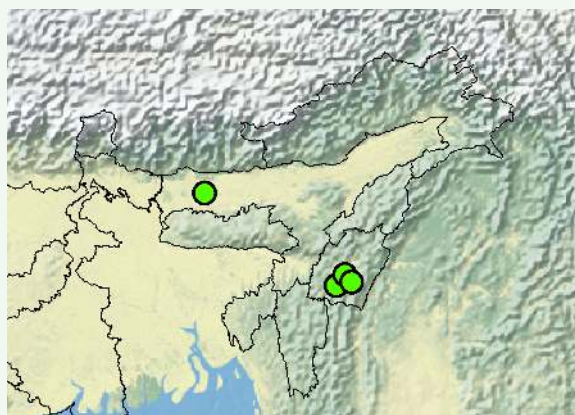
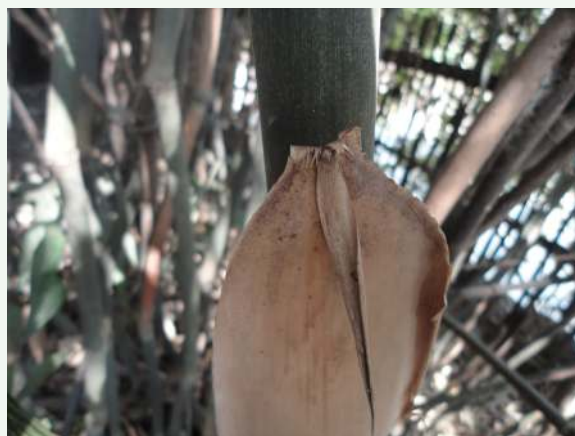
Type: India: Cachar, Bhuban Hills, Majumder 73083 (CAL).

Evergreen scandent bamboo with very long solid culms; *nodes* with woody ring, formed by the persistent lower part of the culm sheaths; *branches* many in tufts, supporting often a solitary large bud that develop into a branch as thick as the main culm; *culm sheaths* cylindrical, brittle, glabrous with obscure auricles and tall, concave, lacerate ligule; *imperfect blade* lanceolate, reflexed, hairy on inner surface.

*Habitat*: Common in the tropical low land rain forests of Cachar, Manipur and other adjoining parts of Assam. The culms are used in basket works.

*Distribution*: Assam, Manipur.

*Conservation status*: CRB1ab(iii)+2ab(iii).





24. **Melocanna clarkei** (Gamble ex Brandis) P. Kumari & P. Singh in Nelumbo 51: 234. 2009. *Arundinaria clarkei* Gamble ex Brandis. Indian Trees: 666. 1906.

Type: Cherra end, 2000 ft., Oct. 1867, C.B. Clarke 5563 (CAL).

Moderate sized, erect bamboos with distant spreading culms. Culms ca 10-12 m tall, 2-3 cm in dia., green; nodes even, oblique, broad white ringed below and thin purplish ring above nodal line; culm sheaths blackish-brown appressed hairy on outer surface, truncate at top, with triangular inflated blade; auricles obscure; leaf sheath auricles roundedly-elongate, bearing 5-6, ca 5 mm long bristles.

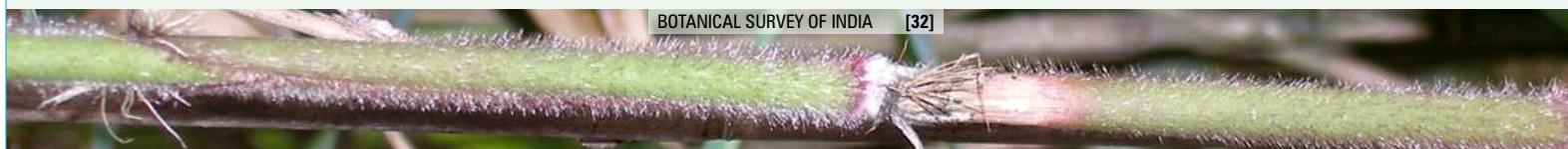
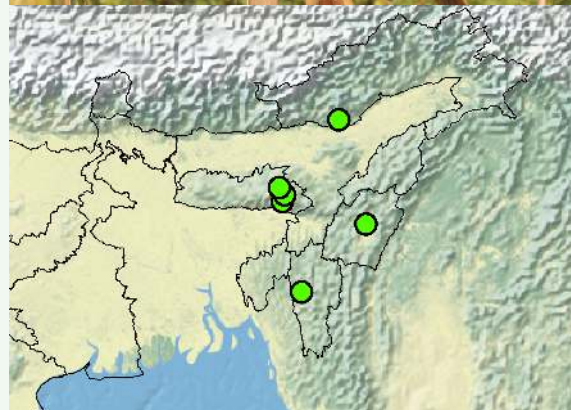
New shoots: August–September.

Flowering: May–April.

Habitat: Found between 900-1600 m in sub-tropical to warm temperate zone. Grows in hilly evergreen forests forming large, spreading patches.

Distribution: Meghalaya, Manipur, Mizoram, Nagaland.

Conservation status: VUD2



25. *Munrochloa ritcheyi* (Munro) M.Kumar & Remesh, J. Bot.Res.Inst.Texas (1): 374. 2008; *Bambusa ritcheyi* Munro. Trans. Linn. Soc. London 26(1):113.1868.

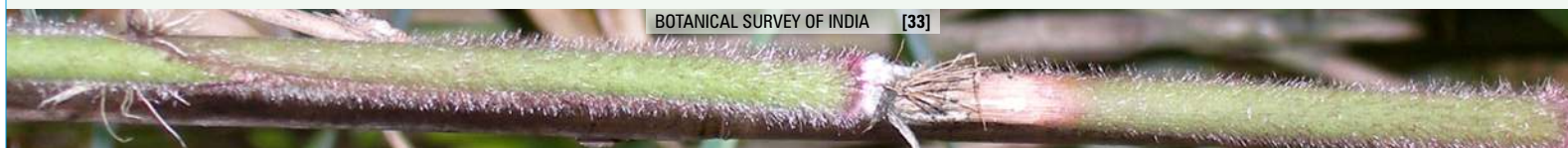
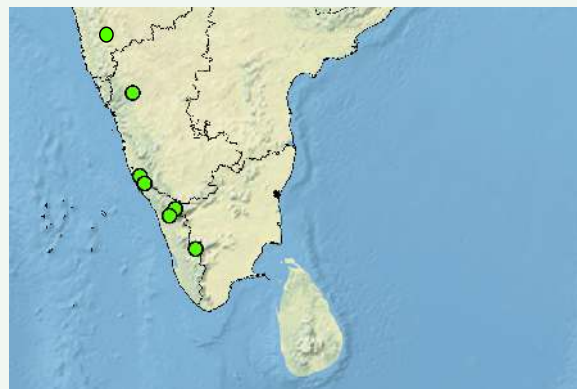
Type: India: Bombay, Kala Nuddi, Ritchie 820.

Perennial, caespitose, gregarious. Culms erect, 3-5 m tall, strong, solid; nodes raised, white ringed above and below nodal line; internodes 25-34 cm long, 2.5-5 cm in diameter, densely clothed with golden yellow to white velvety tomentum, smooth at maturity; culm sheaths deciduous, 15-26 cm long, 6-9 cm wide at base, coriaceous, sparsely hirsute, margins papery; auricles absent; ligule 2-3 cm high, concave, fimbriate; imperfect blade 12-24 cm long, 1.2-3 cm wide, narrow, linear-lanceolate, reflexed.

*Habitat:* This species is endemic to Western Ghats. It is found growing upto an altitude of 200-1100 m.

*Distribution:* Karnataka, Kerala, Maharashtra.

*Conservation status:* LC





26. **Ochlandra beddomei** Gamble. Ann. Roy. Bot. Garcl. (Calcutta) 7: 124. t. 110. 1896.

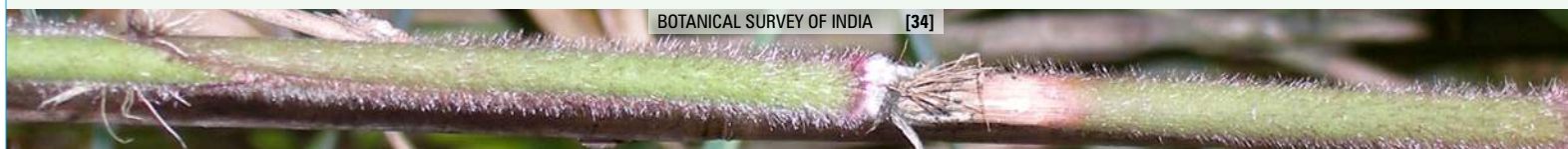
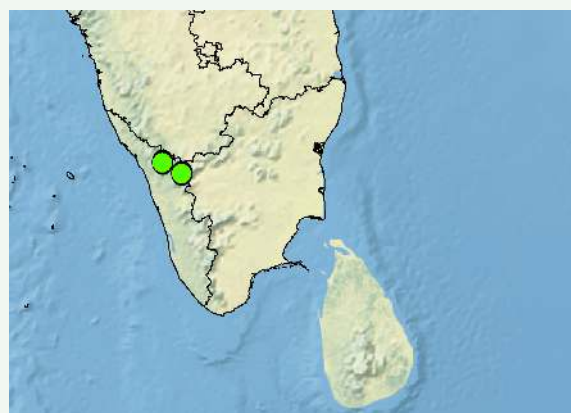
Type: India: Wynaad, *Beddome* s.n.

Perennial, caespitose, gregarious. Culms erect, hollow, 6-7 m tall; *nodes* somewhat swollen, sheath scar and nodal ridge prominent; *internodes* 30-45 cm long, 2-3.5 cm diameter; *culm sheaths* 14-22 cm long, 7.5-12 cm broad at base, coriaceous, covered with bulbous based brown hairs when young, sparsely hirsute, persistent or deciduous, striate; *imperfect blade* reflexed, glabrous, subulate; *auricle* short with numerous stiff bristles; *ligule* short; *leaf sheaths* imbricate, slightly hirsute, striate, ciliate along the margins; *auricle* prominent, decurrent with erect, stiff bristles.

*Habitat*: This species is growing at an altitude of 1000 to 1500 m. It is a component of moist deciduous and semi evergreen forests. Flowering is rare.

*Distribution*: Kerala.

*Conservation status*: CRB1ab(iii)+2ab(iii).





27. **Ochlandra ebracteata** Raizada & Chatterjee. Indian Forester 89(5): 362. 1963.

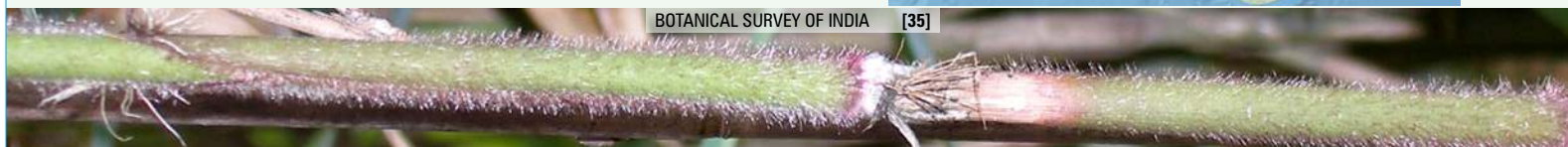
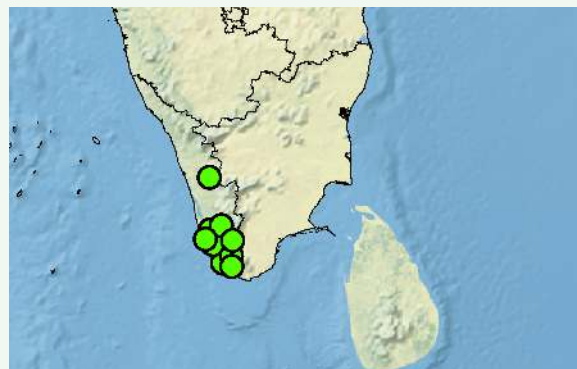
Type: India: Kerala, Parithipally range, Kottur reserve, Trivandrum division, June 28. 1961, *Managing Agents, Punalur Paper Mills s.n.*, (DD).

Perennial, caespitose, gregarious. Culms erect, 6-7 m tall, hollow, apex arched; internodes 60-65 cm long, 2-2.3 cm in diameter, pale green, smooth; culm sheaths 14-22 cm long, 9-12 cm wide at base, coriaceous, striate, covered with dark brown bulbous based hairs; auricle very short with numerous stiff bristles; ligule prominent, 0.8-1 cm long, lacerate; imperfect blade reflexed, smooth, subulate; leaf sheaths smooth, striate; auricle short with stiff bristles.

*Habitat*: It is a component of semi-evergreen forests from an altitude of 500 to 1000 m. It flowers gregariously and sporadically. Flowering continuous for one year and all the culms die after fruiting.

*Distribution*: Kerala.

*Conservation status*: CRB1ab(iii)+2ab(iii).



28. **Ochlandra keralensis** M. Kumar, Remesh & Sequiera, J. Econ. Taxon. Bot. 25(1): 49-51.f.1 (A-N). 2001.

Type: India: Kerala, Pathanamthitta District, Pachakkanam. 3200 ft., December 9, 1998, Remesh & Stephen 20730 (KFRI).

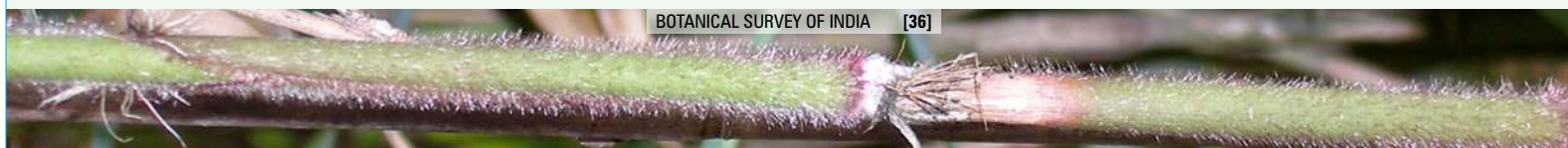
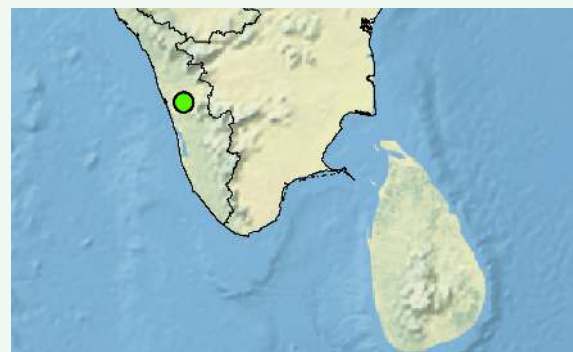
A small straggling bamboo. Culms erect up to 3 m height, yellowish green, 1.6-2.2 cm in diameter, slightly rough, hollow, wall thickness 2.5 mm; nodes prominent and swollen; *intemode* 45-65 cm long; *culm sheath* 12-18 cm long, thin, striate, young, wrinkled; auricle ciliate; *imperfect blade* narrow, linear lanceolate; *leaf sheath* hard stramineous with bulbous based hairs when young.

Flowering and Fruiting: After a gregarious flowering, the flowering and fruiting continues up to almost a year and a half.

*Habitat*: Growing in water logged open land in the evergreen forests at an altitude of 1000 m.

*Distribution*: Kerala.

*Conservation status*: CRB1ab(iii)+2ab(iii).





29. **Ochlandra scriptoria** (Dennst.) C.E.C. Fiseh., Fl. Madras 3(10): 1863. 1934. *Bambusa scriptoria* Dennst., Schlitzell Hort. Malab. 31. 1818.

Type: Rheede, Hortus. Malab. 3. t. 60 as "Beesha".

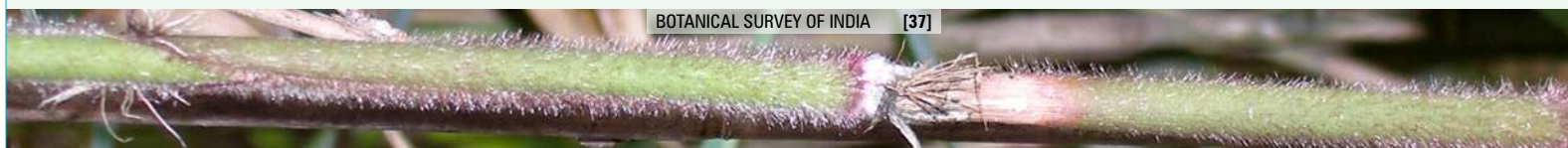
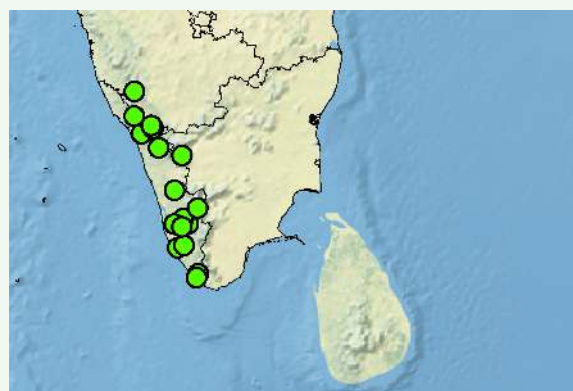
Perennial, caespitose, gregarious, shrubby. *Culms* erect, sometimes straggling, 5-6 m tall, tip arched or drooping; *internodes* 20-60 cm long, 1-2 cm in diameter, pale green, smooth, hollow; *nodes* swollen, sheath scar and nodal ridge prominent; *culm sheaths* 15-20 cm long, 6-8 cm wide at base, sparsely hairy when young, hairs restricted to the base and margins when old, late deciduous, striate; *auricles* falcate, with stiff bristles, deciduous; *imperfect blade* erect, glabrous, narrow, deciduous; *leaf sheaths* smooth, striate; *auricles* small, falcate with stiff deciduous bristles.

*Habitat*: It is distributed from sea level to an altitude of 600 m. It is common along the river and stream sides. Gregarious flowering was observed in Pathanamthitta district during 2000.

*Distribution*: Karnataka, Kerala, Tamil Nadu.

*Note*: Presence of falcate auricle is considered a key character of this species. However, it is visible only in younger shoots.

*Conservation status*: VUD2





30. **Ochlandra setigera** Gamble. Ann. Roy. Bot. Gard. (Calcutta) 7: 128. t. 115. 1896.

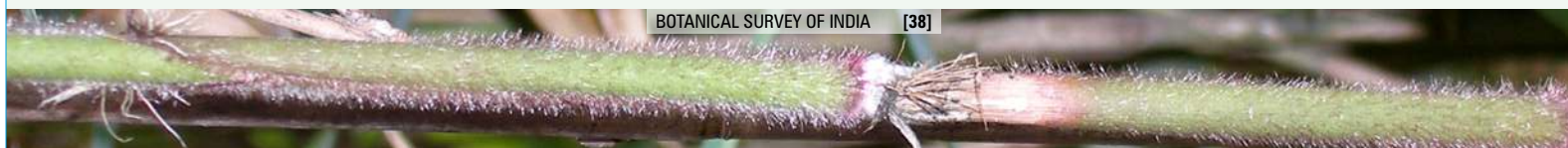
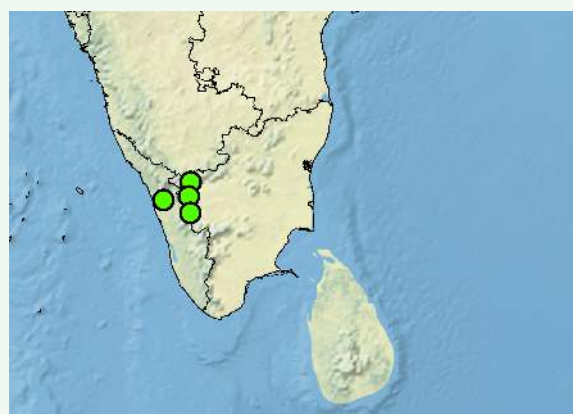
Type: India: western slopes of Nilgiri Hills, Gudalur, alt. 3000 ft., *H. Trimen* s.n.

Perennial, caespitose, gregarious. Culms erect, or straggling, 5-8 m tall, the tip whip like and pendulous; internodes yellowish green, 23-35 cm long, 1.5-2.2 cm in diameter, smooth, a white band present just below the nodes, hollow; culm sheaths papery, thin, 12-18 cm long, 7-9 cm wide at base, sparsely hirsute when young, afterwards glabrous, striate, narrow at rounded apex; auricle absent, oral setae inconspicuous; imperfect blade very narrow, needle like; leaf sheaths closely adhered, smooth, striate; auricle very short with stiff deciduous bristles.

*Habitat:* Endemic to Nilgiri Biosphere Reserve. It is distributed in Malappuram and Palakkad districts, Kerala and Gudallur, Tamil Nadu at an elevation of 600-1000 m. It is a component of moist deciduous and semi-evergreen forests. It forms pure reed breaks in the Silentvalley National Park.

*Distribution:* Kerala, Tamil Nadu.

*Conservation status:* VUA2cd



31. **Ochlandra spirostylis** M. Kumar. K.K. Seethal. & Sequiera. Rheede 9(1): 31-33. 1999.

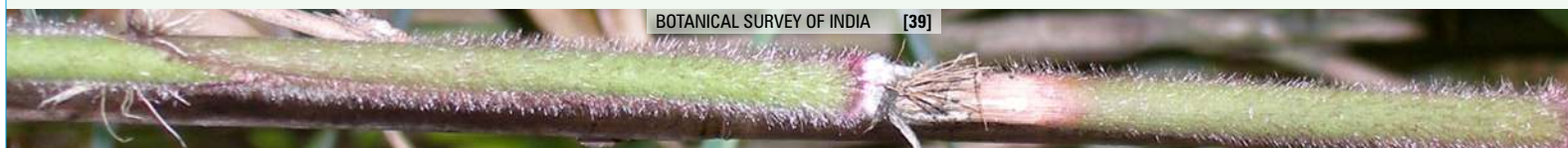
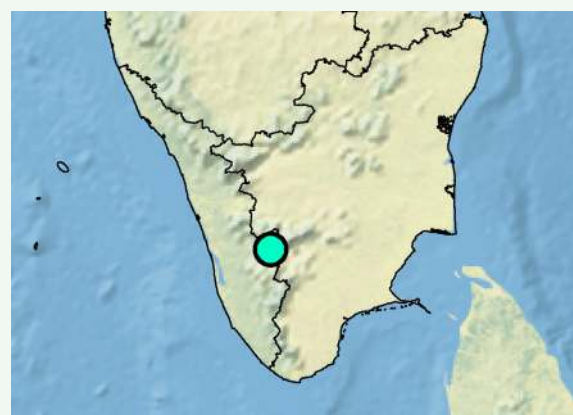
Type: India: Kerala. Idukki District. Adimali. Chattuparakudv. 3000 ft.; May 30, 1998; *Stephen Sequiera* 008884 (KFRJ).

A gregarious shrubby bamboo. *Culms* erect up to 6 m in height, greyish green, rough in texture; *nodes* some what raised, a greyish band with brown appressed hairs below on each node; *culm sheath* thin, papery, 13-15 cm long, striate when old, wrinkled, greyish, appressed hairs near the base; *leaf sheath* glabrous, shiny, striate.

*Distribution*: Kerala.

*Note*: Allied to *Ochlandra setigera* Gamble and *O. talbotii* Brandis but differs in having ciliate margin lemma; palea with a fimbriate notch at the apex, ciliate on upper margin; lodicules 3, ciliate at apex, with a sulcus; stamens pink coloured with 1 or 2 spicules at the apex of the connective; ovary rounded and ridged; style spirally twisted with 6-8 plumose stigmas.

*Conservation status*: CRB1ab(iii)+2ab(iii).





32. **Ochlandra talbotii** Brandis, Indian Trees 684. 1906.

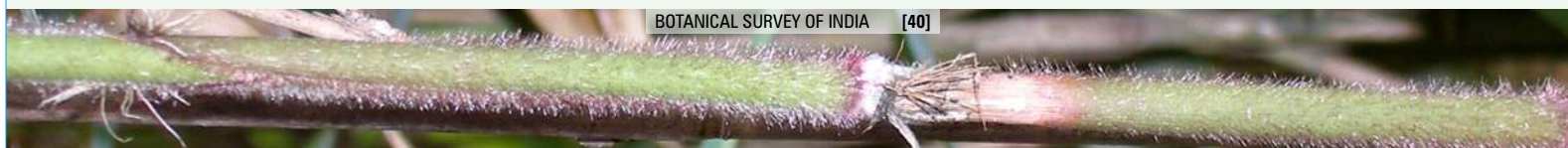
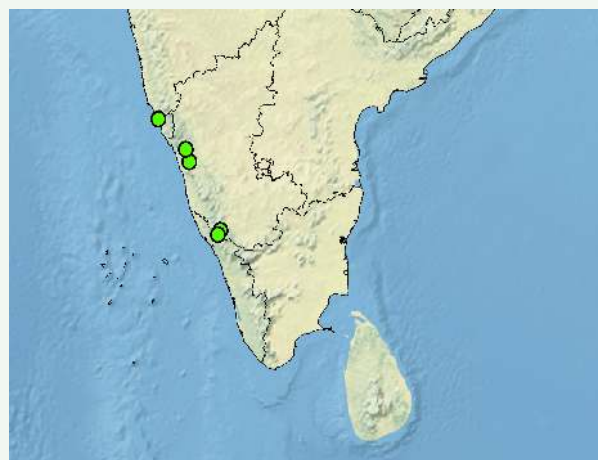
Type: India: North Kanara, Brandis s.n.

Perennial, caespitose, gregarious. Culms slender, erect, 4-8 m tall, self-supporting, or straggling, or sometimes scandent; internodes 25-45 cm long, 2-3 cm in diameter, pale green, rough towards the tip, hollow; culm sheaths 14-22 cm long, 7.5-11 cm wide at base, coriaceous, covered by dark brown hairs when young, sparsely hirsute, striate when old, apex truncate; auricle very short, oral setae numerous, stiff, deciduous; imperfect blade narrow, 2-4.5 cm long, 0.2-0.3 cm wide at base, deciduous; leaf sheaths overlapping, smooth, striate; auricle small, falcate, with stiff deciduous bristles.

*Habitat:* It grows from an altitude of 200-1000 m. It is a component of moist deciduous and semi-evergreen forests. It is also found growing along river and stream sides. Sporadic flowering in summer months is frequent.

*Distribution:* Karnataka, Goa.

*Conservation status:* VUA2cd





33. **Ochlandra travancorica** (Bedel.) Benth. ex Gamble, Ann. Roy. Bot. Gard. (Calcutta) 7: 125. t. 111. 1896. *Beesha travancorica* Bedd., Forester's Man. Bot. 234. 1873.

Type: India: Mountains of Tinnevely and Travancore, alt. 3000-5000 ft., Madras, *Beddome s.n.*



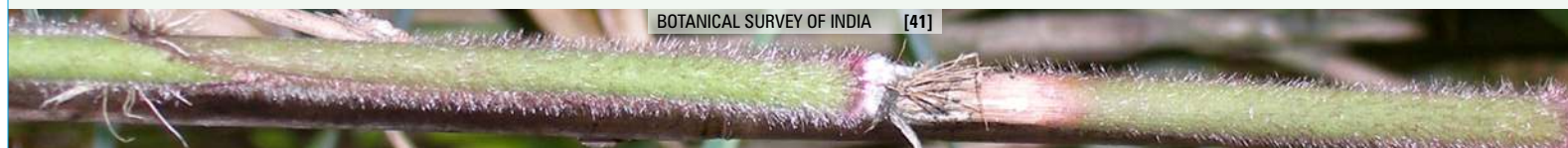
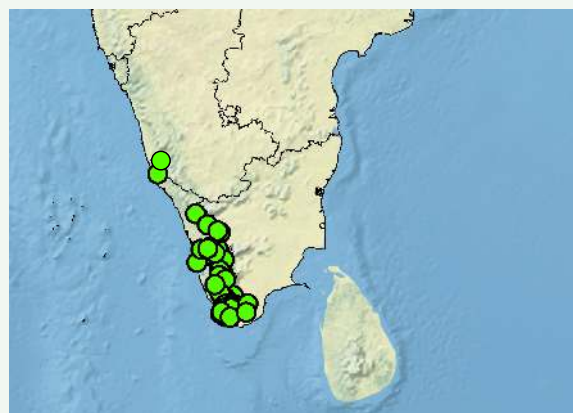
Perennial, caespitose, gregarious. Culms erect, 4-10m tall, tip slightly arched or sometimes whip like, closely packed and impenetrable; internodes 0.5-1.2 m long, 4-6 cm in diameter, dark green, hollow; culm sheaths coriaceous, 15-26 cm long, 8-12 cm wide at base, covered with bulbous based golden brown hairs when young; auricle short, inconspicuous, fringed with numerous stiff bristles; imperfect blade reflexed, glabrous, subulate, 5-12 cm long, 0.6-1.2 cm wide at base.



*Habitat:* This is the most common reed bamboo with a wider distribution in southern Western Ghats. It is found growing from sea level to an elevation of 2000 m. It is a component of moist deciduous and semi-evergreen forests, and form reed breaks. It also grows along river and stream sides.

*Distribution:* Karnataka, Kerala, Tamil Nadu.

*Conservation status:* VUD2



34. **Ochlandra wightii** (Munro) C.E.C. Fisch., Fl. Madras 3(10): 1864. 1934. *Bambusa wightii* Munro. Trans. Linn. Soc. London 26(1): 111. 1868. *Ochlandra brandisii* Gamble, Ann. Roy. Bot. Gard. (Calcutta) 7: 126. t. 113. 1896.

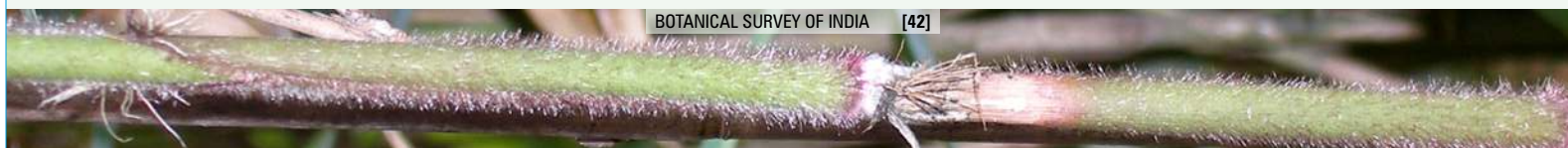
Type: India: Tinnevely Ghats, Courtallum, alt. 3000 ft., 1835, Wight 1009.

Perennial, caespitose, gregarious. Culms erect, closely packed, 5-6 m tall, slightly arched above; *internodes* 50-70 cm long, 1.2-1.3 cm in diameter, light green, rough, hollow; *culm sheaths* thin, 15-19 cm long, 6.5-8.5 cm wide at base, covered with bulbous based brown hairs when young, striate, apex truncate; ligule 2-4 cm tall, papery, continuing with culm sheath margins; *leaf sheath* overlapping, striate, smooth; auricle short, with stiff deciduous bristles; *leaf sheath* ligule papery, 1.5-2.5 cm long, acute.

*Habitat*: It is reported from the southern most part of Western Ghats at an altitude from 200 m to 1000 m. It is a component of moist deciduous and semi-evergreen forests at Trivandrum district, Kerala and Keerippara, Thirunelveli and Courtallum in Tamil Nadu. Flowering starts in summer months. Sporadic flowering is common. Gregarious flowering occurs periodically.

*Distribution*: Kerala, Tamil Nadu.

*Conservation status*: VUA2cd





35. ***Pseudoxytenanthera bourdillonii*** (Gamble) H.B. Naithani, J. Bombay Nat. Hist. Soc. 87: 440. 1991. *Oxytenanthera bourdillonii* Gamble, Ann. Roy. Bot. Gard. (Calcutta) 7:76. 1896.

Type: "Western Ghats of Travancore, grows only on steep precipitous places & wet rocks at elevations of 3000-4000 ft.", J.F. Bourdillon s.n.

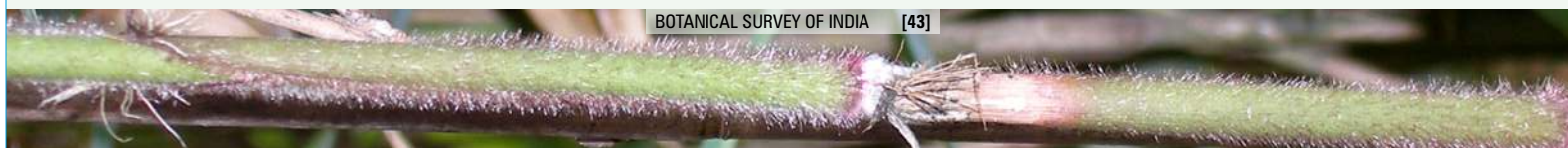
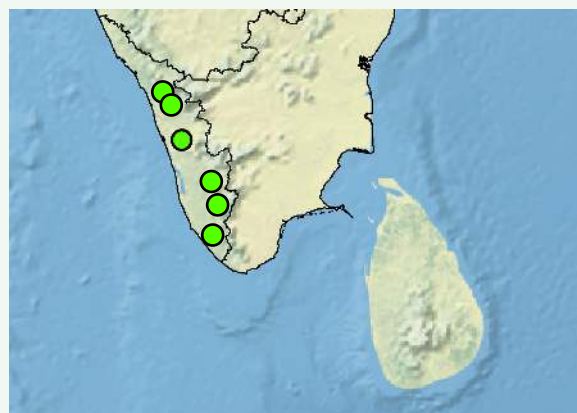
Vern.: Arambu, Arayambu, Kumam, Vellimula (Malayalam).

Arborescent bamboo forming loose, open clumps, culms 15-20 m tall; node even; internodes 40-60 cm long; culm sheath 15-36 cm long, 13-32 cm broad at base, coriaceous, covered with white powdery mass when young; imperfect blade foliose in young shoots, horizontal, base broad, ear-shaped or winged, the wing rounded, entire, decurrent and run the entire upper edge of the sheath; branches from the upper nodes; leaf sheath imbricate, sparsely hirsute, striate, keeled; auricle not prominent, oral setae absent.

*Habitat*: This species is found growing on steep precipitous places and wet rocks of moist deciduous forests at an altitude of 750-1300 m.

*Distribution*: Kerala.

*Conservation status*: VUA2cd



36. **Schizostachyum andamanicum**

M.Kumar & Remesh, in Blumea 48(1): 187-189. 2003. *Schizostachyum kalpongianum* M. Kumar & Remesh in Blumea 48(1): 187-189. 2003.

Type: Saddle Peak (North Andaman), Andaman Islands, India, 25.5.2000, Remesh & Vishwa kumar 20780 (Holo KFRI; Iso L, MH).

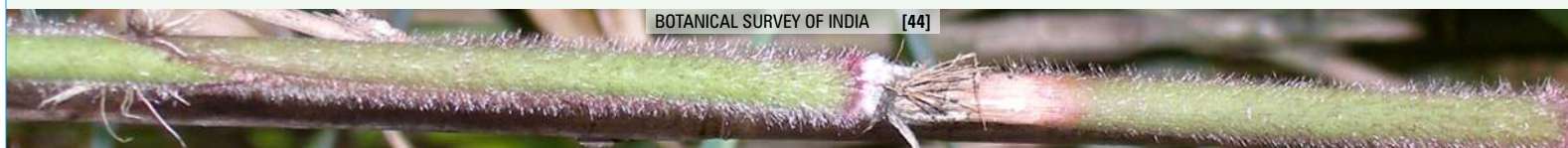
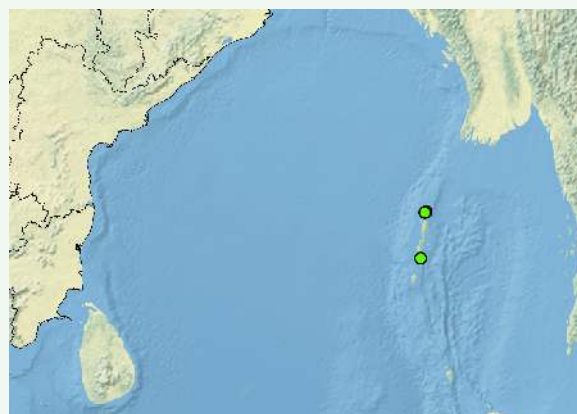
A semiscandent sympodial bamboo with highly straggling culms arching over neighbouring plants and forming large bushes in hill slopes; nodes somewhat swollen with a smooth spongy nodal ring; culm sheath rigid, greyish green with purplish orange tinge, clothed by a few brown hairs; auricle small elongated, dark brown up to 2 mm high with many long silky, white bristles coiled; imperfect blade linear lanceolate, inner surface white-golden silky hairy; ligule up to 2 mm long; leaf sheath glabrous, margin serrulate, auricle small, 1 mm high with few bristles.

**Flowering & fruiting:** Flowering occurs irregularly throughout the year.

**Habitat:** Occurring in hilltop stunted evergreen forests, altitude 350-732 m.

**Distribution:** Andaman & Nicobar Islands.

**Conservation status:** VUA2cd





37. ***Sinarundinaria arunachalensis*** H.B. Naithani, Indian Forester 117(1): 78. 1991. *Chimonocalamus longispiculatus* Majumdar in Karthikeyan & al., Fl. Ind. Enum. Monocot. 276. 1989. *Pleioblastus simonii* sensu Naithani & Bennet in Indian Forester 112(1): 85. 1986., non (Carr.) Nakai (1925) non *Bambusa simonii* Carr. (1866).

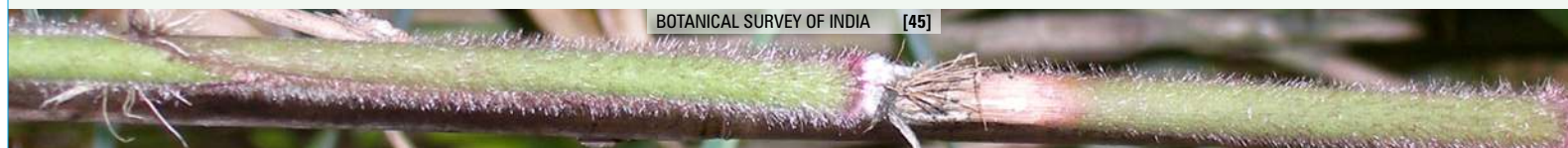
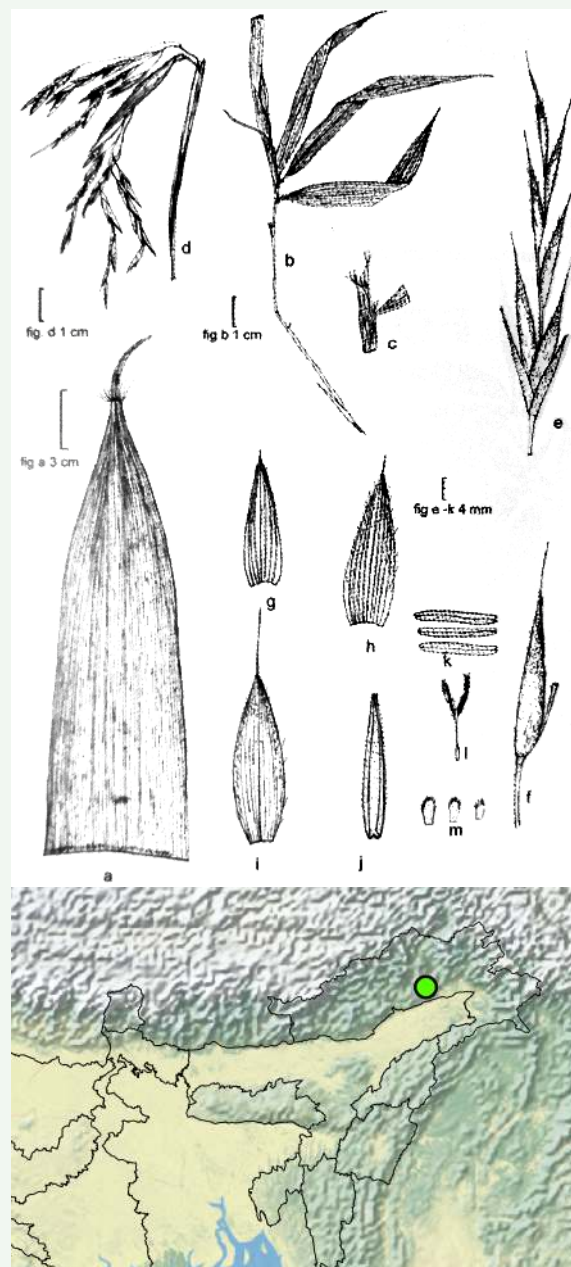
Type: Subansiri, Arunachal Pradesh, Bapu, Burkill 36550 (CAL).

Vern.: 'Yen' (Nishi) and 'Hebing' (Apatani).

*Culms* ca 7 m high; nodes raised; *internodes* 9-40 cm long; branches 10-12 on upper nodes; *culm sheaths* upto 35 cm long, 9-12 cm broad at base, glabrous, attenuating at narrow truncate apex with straight bristles; *imperfect blade* linear, 5-6 cm long, erect; leaves with numerous cross veinlets and setaceous tips; *leaf sheaths* striate, glabrous, bearing short auricles with stiff bristles and prominent truncate ligule.

*Distribution*: Arunachal Pradesh.

*Conservation status*: VUD2



38. *Sinarundinaria nagalandiana*

H.B. Naithani, in Indian Forester 120(12): 1120-1121. 1994.

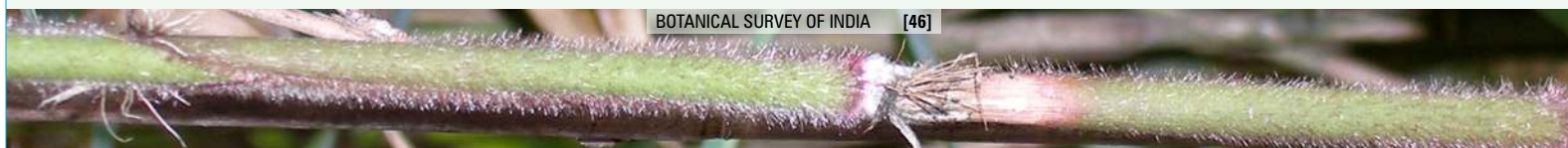
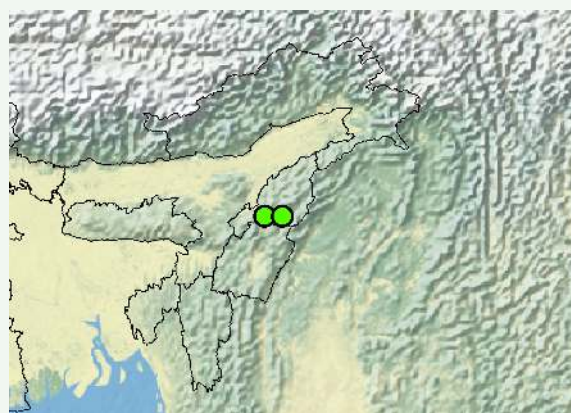
Type: Niriyo Peak, 1200m, Wokha, Nagaland, India, 28.11.1986, H.B.Naithani 1477 (Holo DD).

An erect thorny bamboo. Culms caespitose, 3-7 m high, olive-green; nodes prominent, bearing a circle of conical stout short spines; Culm sheaths papery, striate, transversely veined, covered on the back with scattered, stiff, bulbous-based brown-hairs, obliquely truncate at apex with very small auricles fringed with deciduous bristles; imperfect blade very small.

*Distribution:* Nagaland.

*Note:* Allied to *Sinarundinaria griffithiana* (Munro) Chao & Renv., but differs by culm sheaths without ligule and having broad nonconvexly truncate, apex; leaves broader. Seethalakshmi & Kumar 1998 indicate that the best disposition for this species is a new combination in *Chimonocalamus*. It does have the root spines characteristic of this genus, but is unknown in flower.

*Conservation status:* VUA2cd





39. **Stapletonia arunachalensis** (H.B. Naithani) P.Singh, S.S.Dash & P.Kumari, Nelumbo 51: 241. 2009. *Schizostachyum arunachalensis* H.B.Naithani, Indian Forester 118(3):230. 1992.

Type: India: Arunachal Pradesh, Subansiri District, Baja near Daporijo, 300 m, 17.3.1986, H.B. Naithani 1406 (DD).

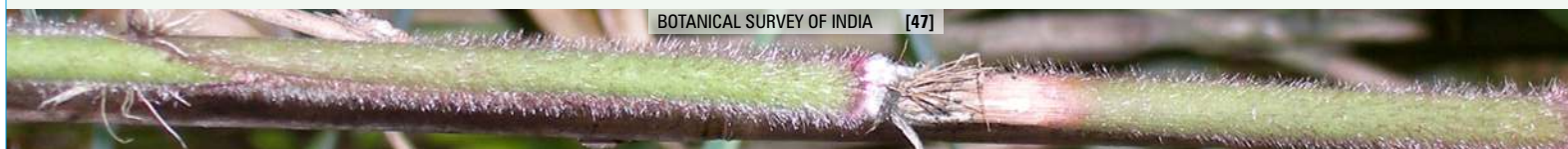
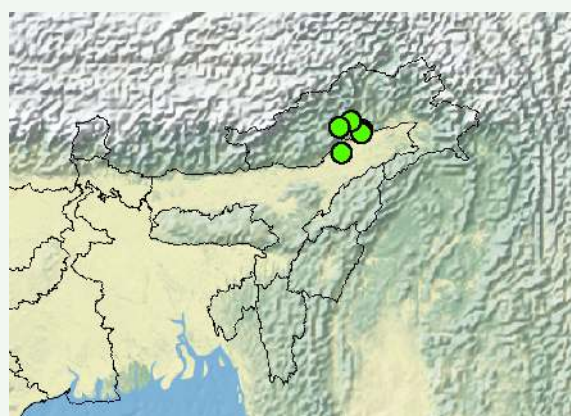
Vern: 'Tuchur' (Adi & Miri); 'Tauk' (Gallongs); 'To' (Apatanis); 'Tabom' (Nishis).

A semi scandent bamboo. Culms 10-15 m high, 6-7 cm in dia.; nodes swollen, ringed with fallen culm sheath base; internodes upto 1.5 m long, hollow; culm sheath shorter than internodes, covered with yellow brown hair on outer surface, oblique at 10-11 cm wide top, one margin ciliate; imperfect blade broader at rounded base, transversely veined, erect; leaf sheath striate, densely ciliate at margins; auricles oblong-conical, extending along margins, long fringed. Inflorescence a dense, globular, terminal head with mostly sterile aristate bracts and few fertile spikelets; fruits globose, fleshy, ca 5 cm across with elongated persistent acicular style resembling needle like beak.

*Habitat*: It is found growing at an altitude of 300-900m in the tropical evergreen forests of East Siang, West Siang and Upper subansiri districts and also along the shallow streams.

*Distribution*: Arunachal Pradesh.

*Conservation status*: VUA2cd



40. ***Stapletonia seshagiriana*** (R.B.Majumdar)  
H.B.Naithani in Indian Forester 139 (11): 1048. 2013.  
*Schizostachyum seshagirianum* R.B. Majumdar in S.  
Karthikeyan & al., Fl. Ind. Ser 4, 1 (Monocotyledon): 282.  
1989.

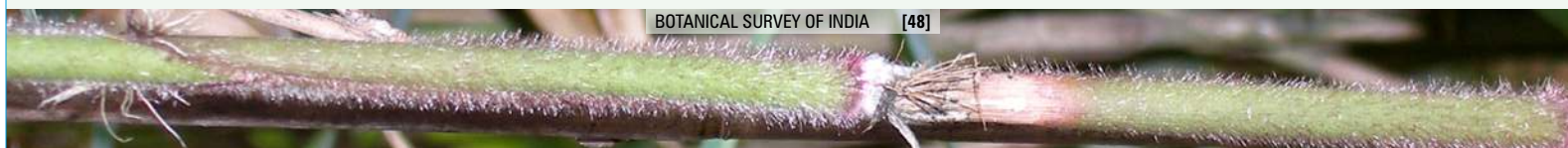
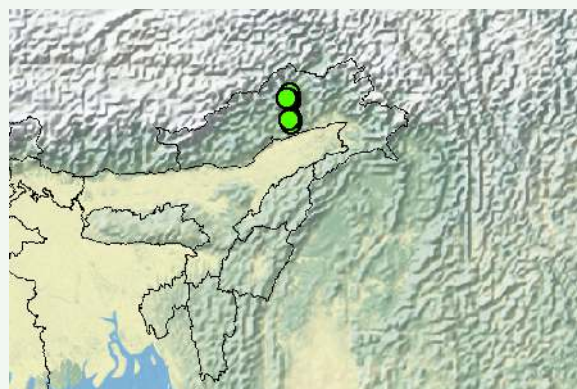
Type: India: Arunachal Pradesh, Garsing to Eyo, Spiang.  
alt. 1900 ft., RS. Rao 1794 (CAL).

Vern.: 'Tabum' (Gallongs).

A trailing bamboo: young stems erect, ashy green,  
distant, upto 3 m tall; nodes prominent; culm sheath  
proper tubular, hard, covered with sparse brown hairs at  
outer surfaces; imperfect blade triangular, 15-25 cm  
long, tapering towards apex with acute tip, about 12 cm  
in girth at inflated base, inflated portion dark brown,  
ciliate on the margin, covered with many parallel veins  
on upper surface, each vein with transverse veinlets.

Distribution: Arunachal Pradesh.

Conservation status: VUA2cd





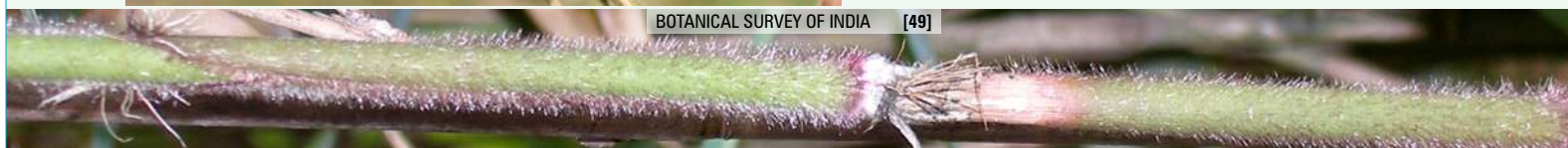
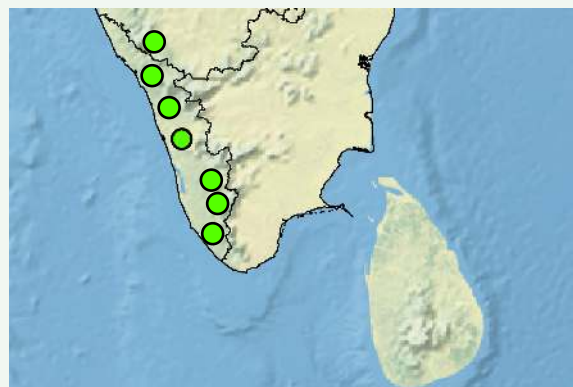
41. **Teinostachyum beddomei** C.E.C. Fisch., Fl. Madras 3(9): 1860. 1931. *Teinostachyum wightii* Bedd., Fl. Sylv. S. India t. 323. 1873 non Munro.

Type: Nilgiri and Travancore Hills, alt. 3000-5000 ft.

Semi scandent bamboo. Culms 3-6 m high, 2.5-3.5 cm in diameter; nodes even; internodes 30-45 cm long; culm sheaths thin, papery, 25-30 cm long, 7-10 cm broad, gradually narrowing to a truncate top, brown-black hair appressed on outer surface; imperfect blade 12-17 cm long, subulate, reflexed, striate; auricles absent; leaf sheath striate, glabrous. Inflorescence panicle of spicate branches, spikes supported by ovate-acuminate bracts.

Distribution: Karnataka, Kerala.

Conservation status: VUA2cd



42. **Thamnocalamus arunachalensis** H.B. Naithani, in Indian Forester 141 (5): 587-589. 2015.

Type: Segong, Machuka, 1800m, West Siang dist., AP, 2.9.2012, H.B.Naithani 5334 (Holo DD).

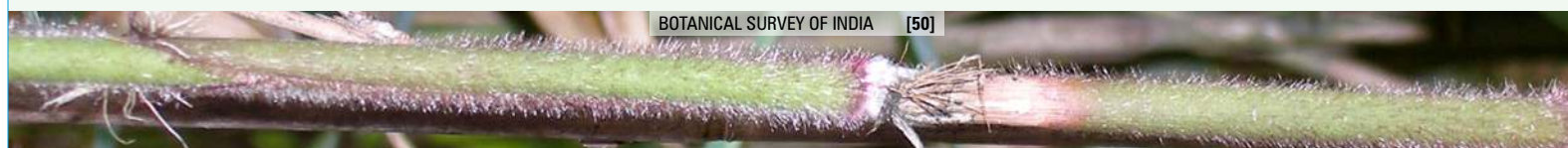
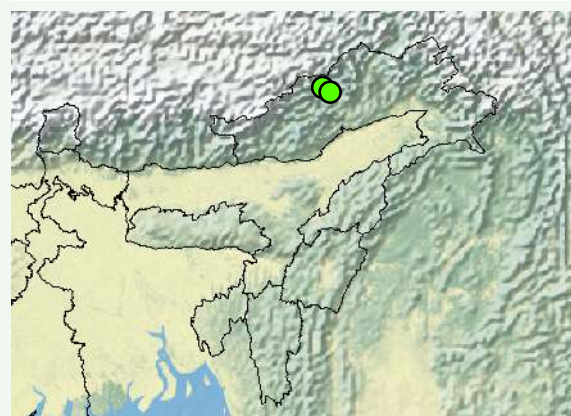
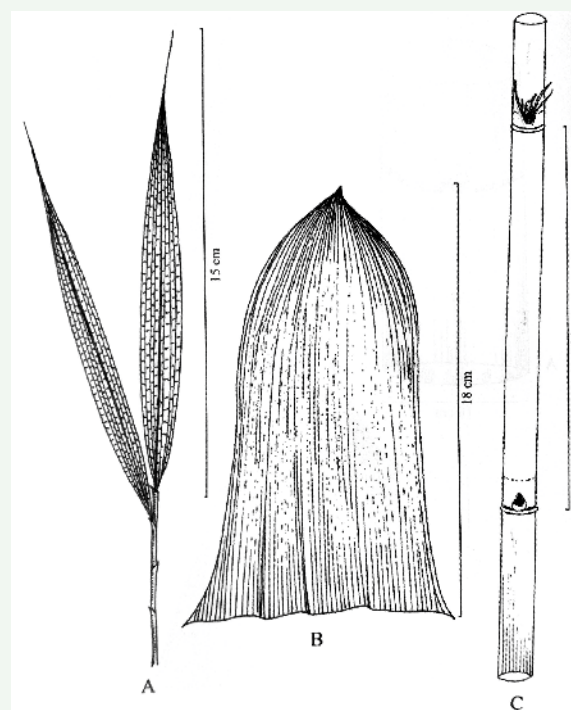
Vern.: 'Saynu' (Mompa of Machuka).

Sympodial with distant culms, growing near streams, 2.5 m high; *nodes* very prominent, raised, with a deep green band; branches 3-6 above the middle, middle one slightly thicker; *Culm sheaths* glabrous shining, khaki-brown, striate; upper one fourth portion with prominent transverse veins, wrinkled with depressions, 10-11 cm long, 4-5 cm broad at the base, tapering upwards to very narrow 01 mm apex; *imperfect blade* exceedingly small, about 01 mm long, triangular.

*Note:* Differs from *Thamnocalamus spathiflorus* (Trin) Munro in having wrinkles and depressions on upper one fourth portion of culmsheath; imperfect blade of culm sheaths very small.

*Distribution:* Arunachal Pradesh.

*Conservation status:* VUA2cd





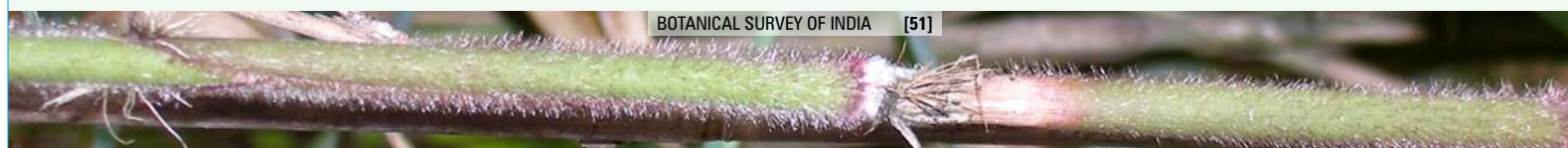
## EXCLUDED SPECIES

**Dinochloa andamanica** Kurz, a lofty climbing species found in Andaman Islands has been excluded from the list of endemic bamboo species of India on the basis of its recent extended distribution updated in the World Monocot flora.

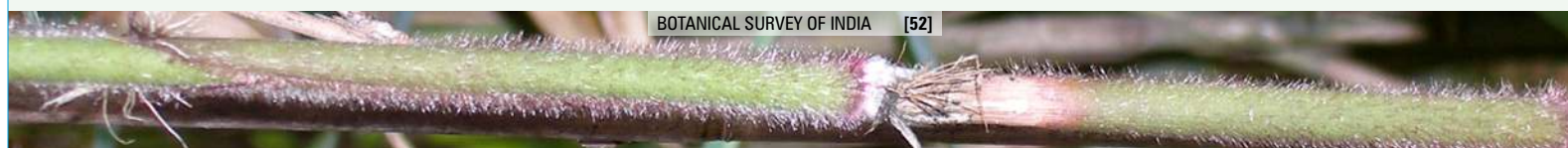
**Dendrocalamus sericeus** Munro, has been excluded from the list of endemic species on the basis of extended distribution to Indo-China.

**Other 9 species listed below have been found conspecific and relegated as synonyms:**

1. *Bambusa mizorameana* H.B. Naithani, in Indian Forester 135(9): 1291-1292. 2009.  
Type: Kawnpui, Mizoram, India, 4.11.1985, H.B.Naithani 1341 (Holo DD). (= **Bambusa oliveriana** Gamble).  
Vern.: 'Talan' (Mizo).
2. *Bambusa assamica* Barooah & Borthakur, in Indian J. Forestry 24(4): 503-505. 2001.  
Type: Amsoi, Morigaon, Assam, India, 8.2.1997, C.Barooah 2520 (Holo ASSAM). (= **Bambusa jaintiana** R.B.Majumdar).
3. *Bambusa bambos* (L.) Voss var. *gigantea* Bennet & R.C. Gaur. Thirty Seven Bamboos Growing in India. 21. 1990. (= **Bambusa bambos** (L.) Voss).
4. *Bambusa barpatharica* Borthakur & Barooah, in Indian J. Forestry 24(4): 505-506. 2001.  
Type: Barpathar No.1, Lakhimpur, Assam, India, 18.8.1996, C.Barooah 2508A (Holo ASSAM).  
(= **Bambusa pallida** Munro).
5. *Bambusa mompaeana* H.B. Naithani, in Indian Forester 141(5): 587-589. 2015.  
Type: cultivated at Warzong, 13 km from Bomdi La, 1600m, West Kameng dist., AP, India, 12.04.2012, H.B.Naithani 5211 (Holo DD). (= **Bambusa pallida** Munro).  
Vern.: 'Maichi-chi' (Mompa).



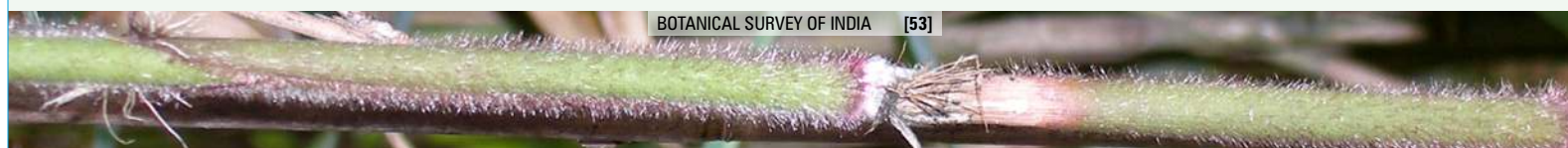
6. *Bambusa rangaensis* Borthakur & Barooah, in Indian J. Forestry 24(4): 508-509. 2001.  
Type: Ranga R.F., Lakhimpur, Assam, India, 18.8.1996, C.Barooah 2512A (Holo ASSAM). (= **Bambusa pallida** Munro).
7. *Ochlandra soderstromiana* Muktesh, & Stephen, in Rheede 9 (1): 33-35. 1999.  
Type: Kallar valley Estate, Kallar, Idukki District, Kerala, India, 1000m, 15.6.1998, Stephen 008883 KFRI (Holo KFRI). (= **Ochlandra travancorica** (Beddome) Benth.).
8. *Ochlandra kadambaranii* M.Kumar, Unnikrshnana, & Remesh, in Bamboos of Penninsular India, KFRI Research Report no. 399: 92. 2011.  
Type: India, Kerala, Kollam district, Nilamel, 150 m, Unnikrishnan 74009 (holotype CALI, Isotype KFRI). (= **Ochlandra travancorica** (Beddome) Benth.).
9. *Schizostachyum kalpongianum* M.Kumar & Remesh, in Blumea 48(1): 187-189. 2003.  
Type: Kalpong Damsite, ca 200m, North Andaman, Andaman Islands, India, 22.5.2000, Remesh & Vishwakumar 20778 (Holo KFRI). (= **Schizostachyum andamanicum** M.Kumar & Remesh).



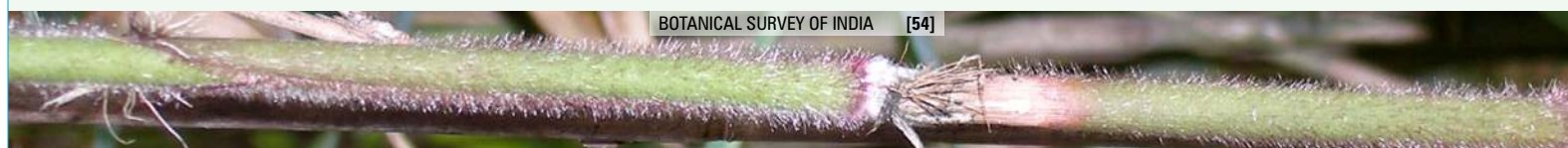


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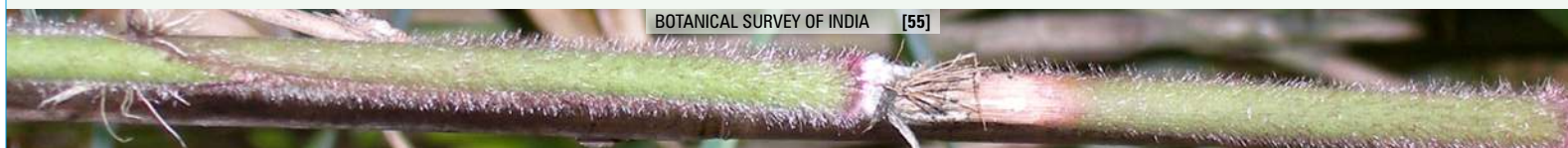




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*Dinochloa nicobariana* R.B. Majumdar